

✓ 1660
4113
12
TM
1945

TM 6-605

WAR DEPARTMENT TECHNICAL MANUAL

U.S. Dept of Army

FIELD

ARTILLERY

INDIVIDUAL AND UNIT
TRAINING STANDARDS



WAR DEPARTMENT • FEBRUARY 1945

WAR DEPARTMENT TECHNICAL MANUAL
TM 6-605

This manual supersedes TM 6-605, 18 November 1941.

FIELD
ARTILLERY
INDIVIDUAL AND UNIT
TRAINING STANDARDS



WAR DEPARTMENT • FEBRUARY 1945

United States Government Printing Office, Washington: 1945
For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C.

WAR DEPARTMENT
Washington 25, D. C., 1 February 1945

TM 6-605, Field Artillery Individual and Unit Training Standards, is published for the information and guidance of all concerned.

[AG 300.7 (5 Dec 44)]

BY ORDER OF THE SECRETARY OF WAR:

OFFICIAL:

J. A. ULIO
Major General
The Adjutant General

G. C. MARSHALL
Chief of Staff

DISTRIBUTION:

AGF (10); FA Bd (1); Def C (2); T of Opns (2); Sp Sv Sch (10)
except FA Sch (50); ROTC 6 (1); USMA (10); Repl Tng
C 6 (100); A (10); CHQ (3); D (2); B 6 (3); R 6 (3); Bn
6 (15)

For explanation of symbols, see FM 21-6.

CONTENTS

U113
2
TM 6:605

1945
★ ★
Paragraphs Pages

CHAPTER 1. GENERAL	1-8	1
2. STANDARDS OF TRAINING IN BASIC SUBJECTS	9-34	4
3. STANDARDS FOR SPECIALISTS AND NONCOMMISSIONED OFFICERS		
<i>Section I.</i> Administrative and Clerical.....	35-49	11
<i>II.</i> Ammunition.....	50-53	14
<i>III.</i> Animal Transport.....	54-63	16
<i>IV.</i> Communication.....	64-76	18
<i>V.</i> Gun (howitzer) Sections.....	77-85	22
<i>VI.</i> Intelligence.....	86-88	24
<i>VII.</i> Instrument and Reconnaissance.....	89-93	25
<i>VIII.</i> Liaison.....	94-96	26
<i>IX.</i> Mechanics, Artillery and General.....	97-101	27
<i>X.</i> Meteorology.....	102, 103	29
<i>XI.</i> Motors and Airplane Personnel.....	104-110	29
<i>XII.</i> Observation Battalion; Flash Ranging.....	111-115	31
<i>XIII.</i> Observation Battalion; Sound Ranging.....	116-123	32
<i>XIV.</i> Observation Battalion; Operations.....	124, 125	34
<i>XV.</i> Observation Battalion; Survey.....	126-130	35
<i>XVI.</i> Operations and Fire Direction.....	131-137	36
<i>XVII.</i> Parachute.....	138-142	38
<i>XVIII.</i> Survey.....	143-146	39
<i>XIX.</i> Specialists Not Provided for by Tables of Organization.....	147-153	40
CHAPTER 4. STANDARDS FOR FUNCTIONAL TEAMS		
<i>Section I.</i> General.....	154	43
<i>II.</i> All Batteries.....	155-160	43
<i>III.</i> Gun or Howitzer Battalion.....	161-165	46
<i>IV.</i> Observation Battalion.....	166-167	55
<i>V.</i> Higher Units.....	168	57
CHAPTER 5. TIME OF PERFORMANCE STANDARDS		
<i>Section I.</i> General.....	169	61
<i>II.</i> Occupation, Organization, and March Order of Positions.....	Operation No. 1-6	62
<i>III.</i> Firing Battery Headquarters and the Firing Battery.....	7-13	64
<i>IV.</i> Forward Observation Party.....	14-19	66
<i>V.</i> Field Artillery Battery and Battalion Survey.....	20-24	70
<i>VI.</i> Fire Direction Team.....	25-33	71
<i>VII.</i> Communications.....	34-40	73
<i>VIII.</i> Air OP Personnel.....	41-49	74
<i>IX.</i> Motor Maintenance.....	50, 51	75, 76
<i>X.</i> Field Artillery Observation Battalion.....	52-63	77
<i>XI.</i> Glider and Parachute Battery.....	64-67	80
<i>XII.</i> Machine Gun Squad.....	68-69	81
INDEX		82

M574581

CHAPTER 1

GENERAL

1. Purpose and Scope

This manual prescribes minimum standards of training for individuals and units of field artillery. The standards are intended for the use of commanders as a guide in determining the professional fitness of an individual soldier or unit to perform normal combat functions.

2. Definition of Terms

a. Knowledge of is used in this manual to specify an understanding of the subject and does not involve the actual performance of an act or duty. The test for *knowledge of* is written or oral.

b. Ability to is used to specify the performance of a duty, such as the *ability to* splice field wire. The test for *ability to* is practical.

c. MINIMUM STANDARD. A definite level of proficiency which is adequate for an individual, team, or unit to function satisfactorily under service conditions.

d. TIME OF PERFORMANCE STANDARD. The attainment of a standard of proficiency in an operation performed by an individual, team, or unit in a specified length of time.

e. FUNCTIONAL TEAM. A group of individuals, with related duties, who work together to accomplish specific functions within a unit.

3. Organization of Manual

Chapter 2 prescribes standards of training in basic subjects for all field artillery soldiers. Chapter 3 prescribes the additional requirements, beyond basic training, for specialists and noncommissioned officers. Each soldier should meet the standards as prescribed in chapter 2, in addition to the minimum standards for his particular job. Chapter 4 describes the standards of proficiency for functional teams in field artillery organizations. Chapter 5 describes typical operations performed by field artillery organizations and teams and prescribes time of performance standards for their accomplishment under the conditions stated.

4. Individual Standards

a. The standards for specialists and noncommissioned officers

Note. For military terms not defined in this manual, see TM 20-205.

make no provision for replacements or reliefs. However, replacements and reliefs must be provided for all posts and duties before the unit is ready for combat. Training to produce this flexibility should be a prime consideration with commanders. As individuals reach proficiency in their assigned duties they should be trained in other duties, especially in those of the next higher position. Every noncommissioned officer, who commands a squad or section, for example, should have at least one replacement within his own command. Higher noncommissioned officers should be trained to perform the duties of commissioned officers.

b. Since this manual lists minimum standards, qualification for a given position does not include ability to perform the duties of a higher position. However, the minimum standard for a position usually includes qualification in a lower job. For example, the chief of section must be qualified as a gunner, who in turn must be qualified as a cannoneer.

c. In certain Tables of Organization, one noncommissioned officer is designated to perform two separate functions: for example, mess and supply sergeant. In such instances the individual must meet the standards for both positions as prescribed in chapter 3.

d. The alphabetical index includes all specialist and noncommissioned officer positions by their designations in Tables of Organization. Parallel positions in different organizations are frequently listed under different titles in Tables of Organization; in such cases, standards for one position only are described in chapter 3. The alphabetical index provides a means of locating titles not found in the paragraph headings of chapter 3.

e. The individual standards set forth herein do not modify or extend the requirements for classifying military occupational specialists (MOS) contained in TM 12-427.

5. Functional Team Standards

a. The standards for functional teams described in chapter 4 are designed to help a commander determine the state of training of the various elements of his organization. These standards, like those for individuals, specialists, and noncommissioned officers, are the minimum standards to be met before entering combat.

b. The titles used to denote functional teams do not necessarily describe the sections or platoons listed in Tables of Organization. A functional team may contain personnel from more than one organization, for example: The fire direction team of a howitzer or gun battalion. Various titles are used in the heading of personnel columns in Tables of Organization but the duties performed within field artillery organizations are similar, despite differences in column titles in Tables of Organization. Similar column titles in different Tables of Organization may have different meanings: for example, battery headquarters in a motorized gun or howitzer battery includes only the battery commander and administrative personnel; in an armored howitzer battery, battery headquarters

includes communication, mess, supply, and administrative personnel.

c. Functional team standards include supervision and direction by commissioned officers of the organization or unit staff.

d. Nothing in this manual will be construed as limiting commanders in the tactical employment of their units. The division into functional teams is intended merely as a guide to assist in training and testing various elements of an organization.

6. Time of Performance Standards

The time required to perform an operation means little in itself. It becomes significant only in relation to the conditions affecting speed under which the operation is performed. The general conditions on which the standards are based in chapter 5 are stated in paragraph 169, and the special conditions for each operation are described in the first column of each table. It is recognized that these "normal" conditions will seldom, if ever, prevail. It is therefore highly important that variations from the assumed conditions be carefully considered, and the prescribed times be adjusted accordingly. The time allowances shown in chapter 5 are *guides*, to be used with judgment and discretion.

7. Conditions of Service

Neither the individual nor the functional team standards in chapters 2, 3, and 4 are qualified as to condition of service. It is assumed that each individual or team will be able to meet these standards under any tactical situation. It is also assumed that a team will be able to perform its functions continuously over long periods of sustained action by providing its own reliefs and replacements.

8. References

Training literature and training aids are listed in FM 21-6, 21-7, 21-8, MTP 6-1, MTP 6-3, and in the training directives published from time to time by Headquarters, Army Ground Forces.

CHAPTER 2

STANDARDS OF TRAINING IN BASIC SUBJECTS

9. Air Transport (Airborne and air transported organizations only).

Ability to—

- a. Pack, adjust, and care for a parachute (parachute artillery only).
- b. Make parachute jump with full field equipment (parachute artillery only).
- c. Load and lash equipment in plane or glider.

10. Animal Transport (Animal-drawn and pack organizations only).

Knowledge of—

- a. Nomenclature of harness or packsaddle.
- b. Disposition of harness.
- c. Duties of driver.
- d. Animal injuries, sickness, and disease; prevention, first aid, and emergency treatment.

Ability to—

- a. Harness and unharness; saddle and unsaddle.
- b. Prepare cargo and pack various type loads (pack organizations).
- c. Care for harness or packsaddle.
- d. Groom, feed, and water animals.
- e. Police stables and picket lines.
- f. Ride at walk, trot, and gallop, using the aids (animal-drawn organizations).
- g. Restrain and control animals.
- h. Manage the pair in draft (animal-drawn organizations).

11. Antiaircraft Defense

Knowledge of—

- a. Individual protective measures taken during air attack.
- b. Technique of small-arms fire against attacking aircraft.
- c. Technique of machine gun fire against aircraft using tracer control.

Ability to—

- a. Act as air sentinel.
- b. Distinguish between common friendly and enemy planes.

12. Antitank Defense

Knowledge of—

- a. Technique of direct laying against tanks with primary weapon.
- b. Techniques of fire against tanks with secondary weapons and grenades.
- c. Use of road blocks and obstacles.

Ability to—

- a. Act as antitank sentinel.
- b. Distinguish between enemy and friendly armored vehicles at 800 yards under conditions of excellent visibility.

13. Army Organization

Knowledge of—

- a. Relations of the artillery battery and the battalion to the fighting force as a whole.
- b. Organization of division artillery or group, battalion, and battery.
- c. The arms and services and the general function of each.

14. Camouflage, Concealment, and Cover

Knowledge of—

- a. Principal means of concealment from ground and air observation and aerial photography.
- b. Rules of camouflage discipline.
- c. Methods used to camouflage the equipment issued to the battery.

Ability to—

Use terrain to gain cover and concealment.

15. Cannoneer Drill

Knowledge of—

Duties of members of gun (or howitzer) section.

Ability to—

Load, lay, and fire the piece.

16. Communication

Knowledge of—

- a. Means of communication.
- b. Basic principles of laying and recovering field wire.
- c. Signal security.

Ability to—

- a. Splice field wire.
- b. Connect a telephone to a wire circuit.

- c. Place and receive a telephone call.
- d. Transmit and receive a radiotelephone message.

17. Customs, Courtesies, and Discipline

Knowledge of—

- a. Rights and obligations of the individual soldier under the Articles of War.
- b. Military courtesies and customs of the service.
- c. Disciplinary powers of commanding officers.
- d. Regulations governing furloughs and passes.

Ability to—

Recognize officers and noncommissioned officers of the Army of the United States by insignia of rank or grade.

18. Defense Against Chemicals

Knowledge of—

Methods of decontamination.

Ability to—

- a. Identify mustard gas, phosgene, lewisite, and chlorpicrin.
- b. Execute gas mask drill as prescribed in FM 21-40.
- c. Care for the gas mask.
- d. Act as gas sentry.

19. Dismounted Drill

Ability to—

- a. Execute, as an individual, or in squad, platoon, or battery formation, the commands prescribed in FM 22-5 for:
 - (1) Positions.
 - (2) Rests.
 - (3) Facings.
 - (4) Steps.
 - (5) Marchings.
- b. Execute the manual of arms with the assigned weapon.

20. Equipment

Knowledge of—

- a. Responsibility of the individual for care and preservation of government property and the penalties for defacing, losing, or selling the same.
- b. Proper wearing, allowances, and replacement of the prescribed uniform.

Ability to—

- a. Care for personal equipment, mark as prescribed, clean, adjust, and display.
- b. Pitch and strike single and double shelter tents.

21. Field Fortifications

Knowledge of—

Methods used to fortify field artillery equipment in position.

Ability to—

Dig a prone shelter or fox hole for individual protection.

22. Fire Control Instruments

Knowledge of—

Names, purposes, and care of instruments.

Ability to—

Set up and take down all instruments issued to organization.

23. Hygiene, Sanitation, and First Aid

Knowledge of—

a. Measures taken to prevent intestinal, respiratory, insect-borne, and venereal diseases.

b. The individual soldier's responsibilities in march and camp hygiene and sanitation.

c. Water purification and prevention of trench foot.

Ability to—

a. Maintain personal hygiene and cleanliness.

b. Use medical equipment issued to the battery and field expedients to administer first aid.

24. Interior Guard Duty

Knowledge of—

The general orders and their meaning.

Ability to—

Perform duties of a guard, including challenging, honors and salutes, and guarding prisoners.

25. Intelligence

Knowledge of—

a. The individual's responsibilities in reporting military information.

b. The individual's responsibilities in safeguarding military information.

c. What to do in the event of capture by the enemy.

d. Disposition and precautions against destruction and mutilation of captured or abandoned enemy matériel, equipment, and documents.

26. Map Reading and Use of Compass

Ability to—

- a. Use a large scale map to follow a simple route (approximately 1 mile) on the ground.
- b. Identify on map or aerial photograph the following: roads, streams, wooded areas, and buildings.
- c. Determine direction on the ground by using a compass.

27. Marches, Halts, and Bivouacs

Knowledge of—

- a. Methods of gaining personal comfort in the field.
- b. The individual's responsibilities in maintaining march discipline.

Ability to—

- a. Act as route marker.
- b. Provide for individual security without specific directions.

28. Materiel: Primary Weapon

Knowledge of—

- a. Nomenclature of major assemblies and characteristics of weapon issued to organization.
- b. Care and precautions in handling ammunition.
- c. First echelon maintenance.

Ability to—

Recognize by markings the different kinds of ammunition used in organization.

29. Mines, Booby Traps, and Demolitions

Knowledge of—

- a. Mines and booby traps used by the enemy, and the precautions necessary to avoid them.
- b. Methods of neutralizing mines and booby traps.
- c. Methods of destroying matériel and equipment.

30. Motor Vehicle Driving, Care, and Maintenance

Knowledge of—

- a. Safety precautions and signals.
- b. First echelon maintenance of the vehicle in which he rides.

Ability to—

Operate over a simple course the vehicle in which he rides.

31. Pay, Allowances, Etc.

Knowledge of—

- a. Pay, allowances, deductions, and allotments.

- b.* National Service life insurance.
- c.* Obligations of Government to the soldier's dependents or next of kin in the event of his death while in the Army.
- d.* Obligations of the Government to the soldier in event of permanent disability while in the Army.

32. Physical Training and Conditioning

Ability to—

Pass prescribed physical fitness test.

33. Rail Movement

Knowledge of—

- a.* Rules of conduct for personnel during rail movement.
- b.* Preparing, loading, and securing matériel for rail movement.
- c.* Loading animals for rail movement and care enroute. (Animal-drawn and pack organizations.)

Ability to—

Pack for rail shipment those items of equipment used by the individual in the performance of his duties.

34. Secondary Weapons (As issued to organization)

a. AUTOMATIC PISTOL, RIFLE, CARBINE, AUTOMATIC RIFLE, SUBMACHINE GUN.

Knowledge of—

- (1) Nomenclature and characteristics of weapon with which he is equipped.
- (2) Care and precautions in handling ammunition.
- (3) Safety devices and safety precautions in firing.

Ability to—

- (1) Disassemble and assemble the weapon with which he is equipped, as authorized the using arms.
- (2) Perform first echelon maintenance.

Qualified in—

Firing as prescribed in AR 775-10.

b. MACHINE GUN, CALIBER .30 OR .50.

Knowledge of—

- (1) Nomenclature and characteristics of weapon issued to organization.
- (2) The care and precautions in handling ammunition.
- (3) Safety devices and safety precautions in firing.

Ability to—

Field strip the machine gun.

Qualified in—

Firing as prescribed in AR 775-10.

c. ROCKET LAUNCHER.

Knowledge of—

- (1) Nomenclature and characteristics of weapon.
- (2) The care and precautions in handling ammunition.
- (3) Safety devices and safety precautions in firing.

Ability to—

Load, aim, and fire the launcher.

d. MORTAR.

Knowledge of—

- (1) Nomenclature and characteristics of weapon.
- (2) Care and precautions in handling ammunition.
- (3) Safety devices and safety precautions in firing.

CHAPTER 3

STANDARDS FOR SPECIALISTS AND NONCOMMISSIONED OFFICERS

Section I. ADMINISTRATIVE AND CLERICAL

35. Clerk (battery, headquarters, supply, personnel, general, record, typist, operations).

Ability to—

- a.* Type 35 words per minute.
- b.* Operate adding machine, mimeograph, and multigraph (when issued to organization).
- c.* Use field desk and contents.
- d.* Prepare military correspondence, using approved form and correct grammar.
- e.* Maintain a filing system for his headquarters.
- f.* Prepare battery or battalion orders, reports of boards, court-martial proceedings, reports of survey (battery or headquarters clerk).
- g.* Prepare supply forms and records (supply clerk).
- h.* Prepare personnel forms and records (personnel clerk).
- i.* Maintain unit journal (headquarters clerk).

36. Clerk, Mail

Knowledge of—

- a.* Message center procedure.
- b.* Postal regulations.

Ability to—

- a.* Maintain records of insured and registered mail.
- b.* Handle incoming and outgoing mail.

37. Stenographer

Qualified as—

Clerk (par. 35).

Ability to—

Take dictation in shorthand at rate of 75 standard words per minute.

38. Personnel Sergeant

Qualified as—

Clerk (par. 35).

Ability to—

- a. Use Army Regulations and War Department Circulars as they apply to personnel administration.
- b. Instruct clerks on personnel administration and coordinate their activities.

39. Cook

Knowledge of—

- a. Mess management and accounting.
- b. Elements of nutrition.

Ability to—

- a. Prepare all types of food for the mess.
- b. Care for and preserve foodstuffs.
- c. Set up and operate field range.
- d. Apply principles of mess sanitation.
- e. Care for and maintain mess equipment.

40. Mess Sergeant

Qualified as—

- a. Cook (par. 39).
- b. Driver of mess truck.

Ability to—

- a. Manage the mess, keep records, and prepare reports.
- b. Plan menus.
- c. Instruct mess personnel in the performance of their duties and coordinate their actions in mess operations.

41. Supply Corporal

Knowledge of—

Property accountability and responsibility.

Ability to—

- a. Fill out forms for requisition, receipt, and issue of supplies.
- b. Keep stock records.
- c. Use Army Service Forces supply catalogs.

42. Supply Sergeant

Qualified as—

Supply corporal (par. 41).

Ability to—

- a. Use Tables of Organization and Equipment and Tables of Basic Allowances which apply to his organization.

- b.* Fit clothing and shoes.
- c.* Care for clothing and equipment in storage.
- d.* Requisition, draw, and issue clothing, equipment, and supplies.
- e.* Prepare all forms and reports for worn out, damaged, destroyed, lost and abandoned property, and property left by deserters and deceased.
- f.* Dispose of clothing and equipment, upon confinement, discharge, or retirement of a soldier.

43. First Sergeant

The first sergeant must possess the qualities of leadership which will enable him to coordinate the activities of all enlisted men in the battery.

Knowledge of—

- a.* Duties of all enlisted personnel of the battery.
- b.* Tactical employment of the battery.

Ability to—

- a.* Perform or supervise all battery administrative work.
- b.* Plan local security of truck park.

44. Sergeant Major

Qualified as—

Operations sergeant (par. 135).

Knowledge of—

- a.* Technical and tactical functions of the command post.
- b.* Tactical employment of the battalion.

Ability to—

Supervise the activities of all enlisted men at the command post.

45. Athletic Instructor

Knowledge of—

The rules and skill required for playing several common sports based on previous actual participation.

Ability to—

- a.* Organize groups for athletic competition.
- b.* Draw up schedules for games.
- c.* Act as umpire or referee for any sport.

46. Entertainment Director

Knowledge of—

- a.* Stage set designing.
- b.* Acting (through experience with theatrical productions).

c. Music (to the extent of being able to play an instrument or to sing).

Ability to—

- a. Organize groups for participation in entertainment activities.
- b. Lead group singing.
- c. Make posters.

47. Chaplain's Assistant

The chaplain's assistant must possess same religious belief (Protestant, Catholic, or Jewish) as chaplain and be interested in religious work.

Ability to—

- a. Perform clerical work including maintaining the chaplain's files and doing any typing necessary.
- b. Assist the chaplain in the preparation for and conduct of special types of services.

48. Bugler

Qualified as—

- a. Driver of vehicle in which he rides (par. 104).
- b. Messenger (par. 73).

Knowledge of—

His positions during guard mount and ceremonies.

Ability to—

Blow all bugle calls prescribed for his organization.

49. Orderly

Qualified as—

Driver, vehicle, light (par. 104).

Ability to—

- a. Care for and maintain equipment he is assigned to handle.
- b. Pack assigned equipment for motor, rail, water, or air transport.

Section II. AMMUNITION

50. Ammunition Handler (server)

Knowledge of—

- a. Nomenclature and markings of ammunition.
- b. Storage, care, and protection of ammunition in the field, including segregation by lot and component.

Ability to—

- a.* Clean and prepare ammunition for firing.
- b.* Inspect and recognize defects in projectiles, propellants, fuzes, and primers.

51. Ammunition Corporal

Qualified as—

Ammunition handler (par. 50).

Knowledge of—

Authorized ammunition loads and methods of loading for vehicles of the organization.

Ability to—

- a.* Care for artillery ammunition.
- b.* Receive and account for ammunition, keep records, and make reports.
- c.* Instruct the members of his section in the performance of their duties and coordinate their actions to accomplish assigned missions.

52. Ammunition Sergeant

Qualified as—

- a.* Ammunition corporal (par. 51).
- b.* Driver of vehicles in ammunition train.

Knowledge of—

Routine of ammunition supply, including procedure at division ammunition office and army supply point.

Ability to—

- a.* Use maps and map substitutes to reconnoiter and follow routes for hauling ammunition.
- b.* Keep ammunition records and prepare reports for the battalion.

53. Ammunition Clerk

Qualified as—

- a.* Ammunition corporal (par. 51).
- b.* Clerk (par. 35).

Knowledge of—

- a.* Units of fire for batteries and battalions.
- b.* Normal ammunition loads carried in battalions.
- c.* Methods of drawing ammunition against credits.

Ability to—

Keep ammunition records and make reports for his headquarters.

Section III. ANIMAL TRANSPORT

54. Driver, Pack Animal

Knowledge of—

- a. Principles of marching and march discipline.
- b. Arm signals.
- c. Protection of animals against chemical attack.

Ability to—

- a. Drive pack animals in all maneuvers packed.
- b. Manage pack animals in negotiating difficult terrain.
- c. Perform first aid for animals.
- d. Readjust pack saddle and equipment on the march.

55. Driver, Artillery

Knowledge of—

- a. Principles of marching and march discipline.
- b. Arm signals.
- c. Protection of animals against chemical attack.

Ability to—

- a. Drive the pair in all maneuvers limbered.
- b. Manage the pair in difficult draft and in negotiating obstacles.
- c. Perform first aid for animals.

56. Packer

Ability to—

- a. Train saddle and pack animals.
- b. Tie and splice ropes and cords and make all hitches used in packing.
- c. Adjust pack saddle equipment.

57. Saddler

Knowledge of—

Nomenclature of saddler's tools.

Ability to—

- a. Use and care for saddler's tools.
- b. Repair pack saddle, harness, and other leather equipment.
- c. Repair web equipment and tentage.

58. Horseshoer

Knowledge of—

- a. Nomenclature of blacksmith's tools.
- b. Anatomy and diseases of an animal's foot.

Ability to—

- a.* Prepare the hoof and shape and fit all types of shoes, including corrective shoeing.
- b.* Use blacksmith's tools for forging and welding.

59. Wagoner

Qualified as—

Driver, artillery (par. 55).

Ability to—

- a.* Load wagons.
- b.* Care for and repair wagons.

60. Cargador

Qualified as—

- a.* Driver, pack animal (par. 54).
- b.* Packer (par. 56).

Ability to—

- a.* Set up loads according to the strength and condition of animals.
- b.* Determine by observation condition of animals on the march and which loads need adjustment.
- c.* Supervise packers and drivers in loading and unloading.

61. Packmaster

Qualified as—

- a.* Cargador (par. 60).
- b.* Saddler (par. 57).

Ability to—

- a.* Shape pack saddle pads to maintain fit and to relieve injuries.
- b.* Instruct drivers, packers, cargador, and saddler in performance of their duties and coordinate their actions to accomplish assigned missions.

62. Stable Orderly

Qualified as—

Driver, artillery (par. 55).

Knowledge of—

- a.* Anatomy of horse.
- b.* Feeds and feeding.

Ability to—

- a.* Train and condition animals.
- b.* Treat common animal diseases and injuries.
- c.* Maintain sanitary stables.

63. Stable Sergeant

Qualified as—

Stable orderly (par. 62).

Knowledge of—

- a. Principles of horseshoeing.
- b. Principles of saddlery.

Ability to—

- a. Manage stables.
- b. Instruct personnel in animal management and coordinate their activities to accomplish assigned missions.
- c. Keep forage and horseshoeing records and animal morning and sick reports.

Section IV. COMMUNICATION

64. Wireman and Telephone Operator (lineman, field; operator, telephone, field)

Knowledge of—

- a. Telephone operating procedure.
- b. Phonetic alphabet.
- c. Semaphore.

Ability to—

- a. Install and recover field wire circuits.
- b. Use and maintain wire laying equipment.
- c. Test and repair field wire circuits.
- d. Operate, maintain, and test field telephones and related equipment issued to organization.
- e. Use signal operation instructions.
- f. Interpret line route maps.
- g. Use field message blanks.

65. Switchboard Operator

Qualified as—

Wireman and telephone operator (par. 64).

Knowledge of—

- a. Switchboard operating procedure.
- b. Organization of associated units.

Ability to—

- a. Operate and maintain switchboards issued to organization.
- b. Prepare and use traffic diagram.
- c. Select position for and install a switching central.
- d. Install and test simplex circuits.

66. Wire Corporal (signal corporal)

Qualified as—

Switchboard operator (par. 65).

Ability to—

- a.* Prepare a line route map.
- b.* Reconnoiter for and select field wire routes.
- c.* Instruct lineman and telephone operators and switchboard operators in the performance of their duties.

67. Wire Sergeant (signal sergeant)

Qualified as—

- a.* Wire corporal (par. 66).
- b.* Radiotelephone operator (par. 68).
- c.* Message center corporal (par. 74) (battalion and higher headquarters).

Ability to—

- a.* Reconnoiter for and plan wire systems.
- b.* Organize wire system of command post.
- c.* Instruct the members of his section in the performance of their duties and coordinate their actions to accomplish assigned missions.

68. Radiotelephone Operator

Qualified as—

Wireman and telephone operator (par. 64).

Knowledge of—

- a.* Radiotelephone operating procedure.
- b.* Phonetic alphabet.
- c.* Message center procedure (battalion and higher headquarters).

Ability to—

- a.* Operate and maintain radiotelephone equipment issued to the organization.
- b.* Keep station records.
- c.* Operate panel station.
- d.* Use signal operation instructions.
- e.* Use field message blanks.
- f.* Reconnoiter for and select positions for radiotelephone.

69. Radiotelegraph Operator

Qualified as—

Radiotelephone operator (par. 68).

Knowledge of—

Radiotelegraph operating procedure.

Ability to—

- a. Operate and maintain radiotelegraph and field telegraph equipment.
- b. Establish and operate a visual signal station.
- c. Transmit and receive International Morse Code, five-letter groups at a rate of 13 groups per minute without error for 3 consecutive minutes.

70. Radio Repairman (radio electrician)

Qualified as—

Radiotelegraph operator (par. 69).

Ability to—

Maintain and make authorized adjustments and repairs on communication equipment issued to organization.

71. Radio Corporal

Qualified as—

Radiotelegraph operator (par. 69).

Knowledge of—

Organization of associated units.

Ability to—

- a. Reconnoiter for and select radio, panel, and visual signal stations.
- b. Instruct radio operators in the performance of their duties.

72. Radio Sergeant

Qualified as—

- a. Radio corporal (par. 71).
- b. Wire corporal (par. 66).
- c. Message center corporal (par. 74) (battalion and higher headquarters).

Ability to—

- a. Organize radio system of command post.
- b. Instruct members of radio section in performance of their duties and coordinate their actions to accomplish assigned missions.

73. Messenger (agent; agent, liaison; scout; messenger and signalman)

Qualified as—

- a. Driver, vehicle, light (par. 104).
- b. Wireman and telephone operator (par. 64).

Knowledge of—

Organization of associated units.

Ability to—

- a. Receive and deliver written and oral messages.
- b. Use field message blanks.
- c. Sketch simple maps.
- d. Establish and operate visual signal station.
- e. Use maps or map substitutes in reconnoitering routes.

74. Message Center Corporal (code clerk)

Qualified as—

- a. Messenger (par. 73).
- b. Radiotelephone operator (par. 68).

Knowledge of—

Message center procedure.

Ability to—

- a. Use codes, ciphers, and cipher devices employed by the organization.
- b. Keep message center records.
- c. Use signal operation instructions.
- d. Select communication means to be used in transmitting messages.

75. Message Center Chief

Qualified as—

Message center corporal (par. 74).

Knowledge of—

Communication nets of his own and associated organizations.

Ability to—

- a. Install message center.
- b. Instruct message center personnel in performance of their duties and coordinate their actions in accomplishing assigned missions.

76. Communication Chief

Qualified as—

- a. Message center chief (par. 75).
- b. Wire sergeant (par. 67).
- c. Radio sergeant (par. 72).

Knowledge of—

Communication aspects of field artillery operations.

Ability to—

Instruct all communication personnel in performance of their duties and coordinate their actions to accomplish assigned missions.

Section V. GUN (HOWITZER) SECTIONS

77. Cannoneer

Knowledge of—

- a. Safety precautions in firing.
- b. Safety precautions in handling and storing propellants, projectiles, fuzes, and primers at the gun position.

Ability to—

- a. Perform duties in service of the piece of all cannoneers of the howitzer or gun section as prescribed in the appropriate field manual.
- b. Perform assigned duties in first echelon maintenance of weapon.

78. Gunner, Primary Weapon

Qualified as—

Cannoneer (par. 77).

Ability to—

- a. Perform duties of gunner as prescribed in the appropriate field manual.
- b. Train cannoneers of gun or howitzer section in performance of their duties.
- c. Perform duties of recorder for battery executive.
- d. Care for, test, and adjust the sighting equipment as prescribed in the appropriate field manual.

79. Gunner, Antitank Gun

Qualified as—

Cannoneer (par. 77).

Knowledge of—

Basic tank tactics and antitank technique.

Ability to—

- a. Perform duties of gunner as prescribed in appropriate field manual.
- b. Train members of gun squad in the performance of their duties.
- c. Care for, test, and adjust the sighting equipment as prescribed in appropriate field manual.
- d. Perform first echelon maintenance of the gun and carriage.

Qualified in—

Prescribed firing course for antitank gunners.

80. Gunner, Tank

Qualified as—

Machine gunner, bow (par. 82).

Knowledge of—

Safety precautions in firing.

Ability to—

- a. Lay tank gun by indirect methods.
- b. Perform first echelon maintenance on tank armament.
- c. Handle and care for ammunition carried in tank.
- d. Care for, test, and adjust sighting equipment as prescribed in appropriate field manual.
- e. Estimate ranges.

Qualified in—

Tank gun marksmanship as prescribed in appropriate field manual.

81. Squad Leader, Antitank Platoon

Qualified as—

- a. Gunner, antitank (par. 79).
- b. Driver of prime mover (par. 104).

Ability to—

- a. Estimate ranges and leads.
- b. Instruct the members of his squad in the performance of their duties and coordinate their actions to accomplish assigned missions.

82. Gunner, Machine Gun, Caliber .50 or .30 (gunner, bow)

Knowledge of—

- a. Enemy methods of air attack.
- b. Nomenclature of gun and mounts.
- c. Minor tactics of enemy infantry.

Ability to—

- a. Fire effectively on moving targets using tracer control.
- b. Disassemble and assemble the guns as authorized the using arm.
- c. Diagnose and relieve stoppages.
- d. Perform first echelon maintenance of gun and mounts issued to the organization.
- e. Identify operational aircraft of United States Army Air Forces and other airplanes as required in his theater.

83. Machine Gun Corporal (squad leader, antiaircraft platoon)

Qualified as—

Gunner, machine gun (par. 82).

Knowledge of—

Employment of machine guns.

Ability to—

Instruct the members of his squad in the performance of their duties and coordinate their actions to accomplish assigned missions.

84. Platoon Sergeant, Antiaircraft or Antitank Platoon.

Qualified as—

- a.* Squad leader of his platoon (pars. 81, 83).
- b.* Driver of vehicles with which platoon is equipped.

Knowledge of—

Employment of antiaircraft and antitank weapons.

Ability to—

Instruct the members of his platoon in the performance of their duties and coordinate their actions to accomplish assigned missions.

85. Chief of Section

Qualified as—

- a.* Gunner, primary weapon (par. 78).
- b.* Driver of prime mover (par. 104).
- c.* Ammunition corporal (par. 51).

Knowledge of—

- a.* Fire commands and their execution.
- b.* His responsibilities in preventive maintenance of the primary weapon, prime mover, and all section equipment.

Ability to—

- a.* Perform duties of chief of section as prescribed in appropriate field manual.
- b.* Perform first echelon maintenance of the primary weapon as prescribed in appropriate technical manual, and keep the gun book.
- c.* Operate demolition equipment used in blasting gun pits.
- d.* Instruct the members of his section in the performance of their duties and coordinate their actions to accomplish assigned missions.

Section VI. INTELLIGENCE

86. Intelligence Observer

Qualified as—

Messenger (par. 73).

Ability to—

- a.* Observe in an assigned sector and report military information.

b. Use maps, to include: use of plotting equipment, location of points on ground and map, interpretation of conventional signs and military symbols.

c. Make panoramic sketches or range cards.

87. Intelligence Corporal

Qualified as—

a. Draftsman (par. 131).

b. Intelligence observer (par. 86).

Knowledge of—

a. Organization of associated units.

b. Communication nets of his own and associated units.

c. Available observation facilities and their limitations.

Ability to—

a. Keep a situation map.

b. Maintain a file of combat intelligence and post the S-2 journal.

88. Intelligence Sergeant

Qualified as—

Intelligence corporal (par. 87).

Ability to—

a. Operate an intelligence observation post.

b. Collect and systematically arrange military information.

c. Prepare intelligence reports.

Section VII. INSTRUMENT AND RECONNAISSANCE

89. Instrument Operator

Qualified as—

Tapeman and rodman (par. 143).

Ability to—

a. Lay a battery by compass or base angle and measure compass or base angle on which a battery is laid.

b. Test the aiming circle and battery commander's telescope for proper functioning.

c. Measure horizontal and vertical angles with all fire control instruments issued to battery.

d. Perform first echelon maintenance of fire control instruments.

90. Instrument Corporal

Qualified as—

a. Instrument operator (par. 89).

b. Driver of vehicle in which he rides (par. 104).

Ability to—

- a. Declinate an aiming circle by the known-azimuth method.
- b. Use maps, to include: use of plotting equipment, location of points on ground and map, interpretation of conventional signs and military symbols.
- c. Test aiming circle and battery commander's telescope for accuracy.

91. Instrument Sergeant (armored battalion)

Qualified as—

- a. Radio telephone operator (par. 68).
- b. Gunner, tank (par. 80).
- c. Driver, tank (par. 104).
- d. Instrument operator (par. 89).

Ability to—

- a. Adjust artillery fire by forward observation methods.
- b. Instruct members of tank crew in performance of their duties.

92. Scout Corporal (reconnaissance and instrument corporal)

Qualified as—

- a. Messenger (par. 73).
- b. Instrument operator (par. 89).

Ability to—

- a. Perform duties of recorder for battery executive.
- b. Use maps, to include: use of plotting equipment, location of points on ground and map, interpretation of conventional signs and military symbols.
- c. Act as visual signalman.

93. Chief of Detail (reconnaissance sergeant)

Qualified as—

- a. Instrument corporal (par. 90).
- b. Wire sergeant (par. 67).

Ability to—

- a. Adjust artillery fire.
- b. Conduct position area survey.
- c. Instruct members of the detail in the performance of their duties and coordinate their actions to accomplish assigned missions.

Section VIII. LIAISON

94. Liaison Private

Qualified as—

- Messenger (par. 73).

95. Liaison Corporal

Qualified as—

- a.* Liaison private (par. 94).
- b.* Radiotelephone operator (less ability to operate panel station) (par. 68).

Ability to—

Use pyrotechnic equipment issued to section.

96. Liaison Sergeant

Qualified as—

- a.* Liaison corporal (par. 95).
- b.* Wire corporal (par. 66).

Knowledge of—

Basic tactics of supported units.

Ability to—

- a.* Adjust artillery fire using forward observation methods.
- b.* Use maps, to include: use of plotting equipment, location of points on ground and map, interpretation of conventional signs and military symbols.
- c.* Instruct members of the liaison section in the performance of their duties and coordinate their actions to accomplish assigned missions.

Section IX. MECHANICS, ARTILLERY AND GENERAL

97. Armorer

Ability to—

- a.* Diagnose malfunctions of secondary weapons issued to the organization and perform second echelon maintenance.
- b.* Use War Department publications relating to matériel—to include determination of authorized amounts of tools, accessories, spare parts, and cleaning and preserving materials.
- c.* Care for small arms ammunition.
- d.* Perform second echelon maintenance of primary weapons and carriages.

98. Artillery Mechanic

Qualified as—

- a.* Armorer (par. 97).
- b.* Repairman, utility (par. 99).

Ability to—

- a.* Diagnose malfunctions of primary weapon, and make repairs and adjustments as authorized for second echelon maintenance.

- b. Diagnose malfunctions of fire control instruments and sighting equipment and make authorized adjustments.
- c. Prepare matériel for operation under unusual climatic conditions.
- d. Prepare matériel for transport by rail, air, and water, including estimates of materials and tools.
- e. Prepare matériel for storage.
- f. Inspect ammunition, recognize defects, and make corrections authorized the using arm.
- g. Direct and instruct personnel in matériel maintenance and care and handling of ammunition.

99. Utility Repairman (general mechanic)

Ability to—

- a. Prepare and load matériel for rail shipment.
- b. Use and care for carpenter tools.
- c. Make simple repairs on electrical equipment.
- d. Solder, paint, sew canvas, and perform a wide variety of repairs on military equipment.
- e. Use blocks, tackles, levers, cordage, and wire rope.

100. Welder

Knowledge of—

Safety precautions in handling gas welding equipment.

Ability to—

- a. Repair broken metal equipment by welding, soldering, brazing, flame cutting, and hard facing.
- b. Use mechanic's hand tools.
- c. Make simple forgings.
- d. Perform necessary maintenance on gas welding equipment.

101. Welder, Combination

Qualified as—

Welder (par. 100).

Knowledge of—

Safety precautions in handling electric welding equipment.

Ability to—

- a. Repair broken metal equipment by using electric welding equipment.
- b. Perform necessary maintenance on electric welding equipment.

Section X. METEOROLOGY

102. Weather Observer

Ability to—

a. Operate and maintain all equipment in a meteorological section.

b. Make meteorological observations and prepare meteorological messages for artillery and (in observation battalion) for sound ranging.

103. Weather Observer, Sergeant

Qualified as—

Weather observer (par. 102).

Knowledge of—

Structure of the atmosphere and effects on artillery fire and (in observation battalion) on sound ranging.

Ability to—

a. Prepare a meteorological message by approximate methods.

b. Instruct members of meteorological section and coordinate their actions to accomplish assigned missions.

Section XI. MOTORS AND AIRPLANE PERSONNEL

104. Driver, Motor Vehicle

Knowledge of—

a. Highway signs, traffic regulations, and signs and signals used in motor marches.

b. Driver's responsibilities in the event of accident.

c. Nomenclature and general functioning of those parts and accessories of his vehicle that he is required to service.

d. Records and reports required of driver.

e. Principles of marching and march discipline.

Ability to—

a. Operate his own vehicle with facility, safety, and judgment.

b. Provide for security of his vehicle by dispersion, concealment, and camouflage.

c. Use field expedients to move vehicle when stalled or stopped by unfavorable terrain.

d. Make a short reconnaissance (on foot) to determine the best route for his vehicle.

e. Perform first echelon maintenance on his vehicle.

f. Use and care for the vehicle, tools, equipment, and accessories carried on the vehicle.

g. Perform authorized emergency roadside repairs on his vehicle.

h. Load and secure cargo.

105. Motor Mechanic (automobile; tank; tractor; operator, wrecker)

Qualified as—

Driver of vehicle he is required to service (par. 104).

Ability to—

a. Perform battery or battalion second echelon maintenance and inspections of vehicles of the type on which he specializes.

b. Prepare, load, and secure vehicles and accessories for rail or water shipment.

106. Crane Operator

Qualified as—

Motor mechanic (par. 105).

Ability to—

a. Perform duties of crane operator as prescribed in appropriate field manual.

b. Perform first and second echelon maintenance of truck-mounted crane, clamshell trailer, and clamshell.

c. Use crane with clamshell or hook for all operations connected with emplacing the howitzer (gun) and preparing it for marching.

107. Motor Supply Noncommissioned Officer

Ability to—

a. Use vehicle standard nomenclature lists and parts lists.

b. Requisition, draw, and issue motor vehicle supplies and equipment.

c. Care for and store motor vehicle supplies and equipment.

d. Prepare all forms and reports when motor vehicle property is lost, damaged, destroyed, or worn out.

108. Motor Noncommissioned Officer (chief mechanic)

Qualified as—

Motor mechanic (par. 105).

Knowledge of—

Vehicle repair procedure in all echelons.

Ability to—

Instruct motor mechanics, supply men, and drivers in the performance of their duties and coordinate their activities in motor maintenance, servicing, and repair.

109. Mechanic, Army Airplane and Engine, Battalion

Ability to—

a. Perform first and second echelon maintenance and make authorized repairs on liaison airplanes, engines, and equipment.

b. Keep prescribed records of servicing, maintenance, and inspections for liaison airplanes, engines, and equipment.

c. Diagnose and correct malfunctions of liaison airplanes, engines, and equipment.

d. Reconnoiter for, select, prepare, and maintain landing strips.

e. Use maps, charts, and air photos; make freehand terrain sketches to locate points on the ground; and reconnoiter routes.

f. Install radio in liaison airplane.

g. Load liaison airplanes, engines, and equipment for truck, rail, or ship transport, including estimates of tools and materials.

h. Use Army Air Force Technical Orders pertinent to assigned aircraft and equipment.

110. Mechanic, Army Airplane and Engine, Higher Headquarters

Qualified as—

Mechanic, army airplane and engine, battalion (par. 109).

Knowledge of—

Supply procedure as it relates to liaison airplanes, engines, parts, and equipment.

Ability to—

a. Keep a file of records concerning all aircraft assigned to his unit.

b. Instruct army airplane and engine mechanics in the maintenance of liaison airplanes, engines, and equipment.

Section XII. OBSERVATION BATTALION; FLASH RANGING

111. Observer

Qualified as—

Axeman, tapeman, and rodman (par. 126).

Ability to—

a. Install a flash ranging observation post.

b. Install, operate, and maintain flash ranging observation post equipment.

c. Record and report data pertinent to flash observing.

d. Make panoramic sketches.

e. Measure horizontal and vertical angles with flash observing instruments.

112. Computer, Draftsman

Qualified as—

Computer, survey (par. 127).

Ability to—

a. Use, care for, and maintain drafting and plotting equipment used in flash ranging.

- b. Use maps and map substitutes in flash ranging plotting.
- c. Operate mechanical calculating devices used by his section.

113. Flash Switchboard Operator

Qualified as—

- a. Computer draftsman, flash ranging (par. 112).
- b. Observer, flash ranging (par. 111).

Ability to—

Install, test, operate, and maintain flash ranging switchboard and accessories.

114. Observer Sergeant (chief observer)

Qualified as—

- a. Flash switchboard operator (par. 113).
- b. Survey sergeant (par. 129).

Ability to—

- a. Conduct fire using flash ranging methods.
- b. Instruct and supervise observers, flash ranging, and computer draftsmen, flash ranging.

115. Flash Ranging Chief

Qualified as—

Observer sergeant, flash ranging (par. 114).

Knowledge of—

Tactical employment of the sound ranging and flash ranging platoons.

Ability to—

Instruct personnel of the flash ranging platoon in the performance of their duties and coordinate their actions to accomplish assigned missions.

Section XIII. OBSERVATION BATTALION; SOUND RANGING*

116. Developer, Photographer

Ability to—

- a. Prepare photographic chemical solutions used in sound recording
- b. Adjust, operate, and maintain oscillograph camera.

*These standards are applicable to personnel in the separate sound ranging platoon (T/O and E 6-78S) as well as to those in the sound ranging sections within the observation battalion.

117. Electrician, Storage Battery

Ability to—

- a. Accomplish initial servicing of lead-acid storage batteries.
- b. Care for and maintain lead-acid storage batteries, including charging.
- c. Care for and maintain battery-charging equipment.

118. Observer

Knowledge of—

Operation of sound recording set and the function of outpost equipment.

Ability to—

- a. Install, operate, and maintain sound outpost equipment.
- b. Determine approximate direction and distance of a sound source.
- c. Select sound outpost positions.

119. Recorder

Qualified as—

Electrician, storage battery (par. 117).

Knowledge of—

Operation and maintenance of outpost equipment.

Ability to—

- a. Operate and maintain sound recording equipment.
- b. Use sound recording equipment test sets.

120. Computer, Draftsman

Qualified as—

Computer, survey (par. 127).

Knowledge of—

- a. Installations used in sound ranging.
- b. Survey procedures required for sound ranging.

Ability to—

- a. Apply corrections used in sound ranging.
- b. Use, care for, and maintain drafting and plotting equipment used in sound ranging.
- c. Read sound ranging oscillograms.
- d. Make all computations used in sound ranging.
- e. Operate mechanical calculating devices used by his section.

121. Mechanic, Electrical

Qualified as—

Recorder, sound ranging (par. 119).

Ability to—

Operate, repair, and maintain sound recording equipment.

122. Recorder, Sergeant

Qualified as—

- a. Electrical mechanic, sound ranging (par. 121).
- b. Computer, draftsman, sound ranging (par. 120).

Ability to—

- a. Conduct fire using sound ranging methods.
- b. Instruct the members of his section in the performance of their duties and coordinate their actions to accomplish assigned missions.

123. Sound Ranging Chief

Qualified as—

- a. Recorder sergeant, sound ranging (par. 122).
- b. Survey sergeant (par. 129).

Knowledge of—

Tactical employment of the sound ranging and flash ranging platoons.

Ability to—

Instruct personnel of sound ranging platoon in performance of their duties and coordinate their actions to accomplish assigned missions.

Section XIV. OBSERVATION BATTALION; OPERATIONS

124. Computer, Draftsman

Qualified as—

- a. Computer, survey (par. 127).
- b. Draftsman (par. 131).

Ability to—

- a. Convert from one grid system to another.
- b. Compile and maintain a file of survey records and information.
- c. Use, care for, and maintain topographic drafting and plotting equipment.
- d. Read and interpret maps and photos to include determination of scale, restitution, orientation, and use of stereo-pairs.
- e. Operate mechanical calculating devices used by his section.

125. Operations Sergeant

Qualified as—

- a. Computer, draftsman, operations (par. 124).

b. Operations corporal (par. 134).

Knowledge of—

Routine of collection and dissemination of combat intelligence.

Ability to—

a. Prepare and keep posted operations and situation maps.

b. Instruct members of the operations section in the performance of their duties and coordinate their actions to accomplish assigned missions.

Section XV. OBSERVATION BATTALION; SURVEY

126. Axeman, Tapeman, and Rodman

Ability to—

a. Use standard survey signals.

b. Act as tapeman, rodman, or axeman as prescribed in TM 5-235.

c. Care for and maintain equipment he uses in survey as prescribed in TM 5-235.

d. Repair surveyor's tape.

127. Computer, Survey

Qualified as—

Axeman, tapeman, and rodman (par. 126).

Ability to—

a. Interpret survey notes necessary in the organization.

b. Use logarithms and slide rules in making computations in triangulation and traverse.

c. Determine elevation by trigonometric and barometric levels.

d. Determine azimuth by astronomic computations.

128. Transitman, Survey

Qualified as—

Axeman, tapeman, and rodman (par. 126).

Knowledge of—

Methods of measuring angles and accuracies obtained.

Ability to—

a. Care for, adjust, and repair the surveyor's transit as authorized in TM 5-235.

b. Measure horizontal and vertical angles with the transit, making necessary field notes.

c. Make astronomic observations for direction.

129. Survey Sergeant (chief of party)

Qualified as—

- a. Transitman, survey (par. 128).
- b. Computer, survey (par. 127).

Knowledge of—

Survey plans and accuracies required for various types of survey work.

Ability to—

- a. Read and interpret maps and photos to include determination of scale, restitution, and orientation.
- b. Cut and fit mosaics.
- c. Instruct members of his section in performance of their duties and coordinate their actions to accomplish assigned missions.

130. Chief Topographer

Qualified as—

- a. Survey sergeant (par. 129).
- b. Computer, draftsman, operations (par. 124).

Knowledge of—

- a. Operation of the survey information center.
- b. Survey units available for corps surveys.
- c. Accuracies required and methods of carrying control surveys extending over large areas.

Ability to—

- a. Coordinate surveys in the corps sector.
- b. Supervise survey work of all subordinate and supported units.
- c. Plan future surveys.
- d. Catalog, file, and distribute survey information to subordinate and supported units.
- e. Adjust and recompute surveys of all types.
- f. Make arrangements for proper liaison with all survey units in the corps sector.

Section XVI. OPERATIONS AND FIRE DIRECTION

131. Draftsman

Knowledge of—

Conventional map signs and military symbols.

Ability to—

- a. Cut and assemble mosaics.
- b. Restitute from or to maps, aerial photos, or grid sheets.
- c. Prepare overlays, using correct form, lettering, and symbols.
- d. Plot points and read coordinates.

- e. Use mathematical slide of graphical firing table.
- f. Use plotting scale, coordinate square, protractor, and range deflection fan.

132. Recorder (armored battery)

Ability to—

- a. Perform duties of recorder for battery executive.
- b. Use plotting equipment to keep a firing chart at the battery position.

133. Horizontal Control Operator and Vertical Control Operator (draftsman, topographic)

Qualified as—

- a. Draftsman (par. 131).
- b. Computer, fire direction (par. 136).

Ability to—

- a. Prepare firing chart.
- b. Follow and act on the S-3's fire order.
- c. Apply the mil relation formula.
- d. Apply complementary angle of site.
- e. Use stereoscope for study of relief.
- f. Perform duties of horizontal control operator and vertical control operator as prescribed in FM 6-40.

134. Operations Corporal

Qualified as—

Draftsman (par. 131).

Knowledge of—

Organization of associated units.

Ability to—

- a. Prepare reports and keep records for operations section.
- b. Post operations map.

135. Operations Sergeant

Qualified as—

- a. Chief computer, fire direction (par. 137).
- b. Operations corporal (par. 134).

Knowledge of—

Routine of collection and dissemination of combat intelligence.

Ability to—

- a. Prepare and keep posted operations and situation maps.
- b. Instruct members of operations and fire-direction section in performance of their duties and coordinate their actions to accomplish assigned missions.

136. Computer, Fire Direction

Qualified as—

Wireman and telephone operator (par. 64).

Knowledge of—

Sequence and meaning of fire commands.

Ability to—

- a. Perform duties of computer, fire direction, as prescribed in FM 6-40.
- b. Use firing tables for gun or howitzer with which battalion is equipped.
- c. Follow and act on the S-3's fire order.

137. Chief Computer, Fire Direction

Qualified as—

- a. Computer, fire direction (par. 136).
- b. Horizontal control operator, vertical control operator (par. 133).

Knowledge of—

Principles of battalion survey.

Ability to—

- a. Compute corrections from metro message.
- b. Compute corrections from registration data.
- c. Instruct members of fire-direction team in performance of their duties and coordinate their actions to accomplish assigned missions.

Section XVII. PARACHUTE

138. Parachute Packer

Ability to—

- a. Inspect buckles and harness straps of parachutes for damage or wear.
- b. Repack parachutes that have been inspected or opened in use or unopened chutes that require repacking for safety.
- c. Adjust parachute harness.

139. Parachute Packer Sergeant

Qualified as—

Parachute packer (par. 138).

Ability to—

- a. Care for and store parachutes and related equipment.
- b. Supervise and direct the packing of all types of parachutes used by his unit.

140. Parachute Repairman

Qualified as—

Parachute packer (par. 138).

Ability to—

a. Use, care for, and maintain parachute repair tools and equipment.

b. Make repairs on all parachutes used in organization.

141. Parachute Repairman Sergeant

Qualified as—

Parachute repairman (par. 140).

Ability to—

a. Use Army Air Force Technical Orders.

b. Supervise and direct the repair of all parachutes used in the organization.

142. Parachute Maintenance Chief

Qualified as—

a. Parachute packer sergeant (par. 139).

b. Parachute repairman sergeant (par. 141).

Ability to—

Instruct members of his section in the performance of their duties and coordinate their actions to accomplish assigned missions.

Section XVIII. SURVEY

143. Tapeman and Rodman

Knowledge of—

Methods of taping as prescribed in FM 6-40.

Ability to—

a. Perform duties of head and rear tapeman, as prescribed in FM 6-40.

b. Care for tape, rods, and pins.

144. Survey Recorder and Computer

Qualified as—

a. Tapeman and rodman (par. 143).

b. Draftsman (par. 131).

Ability to—

a. Perform survey computations using logarithms, natural functions, and slide rule.

b. Keep legible survey notes.

145. Instrument Man

Qualified as—

- a. Tapeman and rodman (par. 143).
- b. Instrument corporal (par. 100).

Ability to—

Operate and care for the transit.

146. Survey Sergeant (surveyor)

Qualified as—

- a. Instrument man (par. 145).
- b. Recorder and computer (par. 144).
- c. Driver of survey vehicles (par. 104).

Knowledge of—

His responsibilities in preventive maintenance of all survey equipment.

Ability to—

Instruct the members of the survey section in the performance of their duties and coordinate their actions to accomplish assigned missions.

Section XIX. SPECIALISTS NOT PROVIDED FOR BY TABLES OF ORGANIZATION

Note. No provision is made in Tables of Organization and Equipment for specialists to perform certain battery duties. The special training standards prescribed to determine whether an individual is qualified to perform these duties are listed in the following paragraphs. Battery commanders should designate well qualified individuals for special training in these fields.

147. First Aid Noncommissioned Officer

Knowledge of—

Causes and methods of preventing infection.

Ability to—

- a. Recognize shock, sunstroke, heat exhaustion, and take preventive measures or render first aid.
- b. Control various hemorrhages by emergency means.
- c. Apply initial treatment and transport all fracture cases.
- d. Instruct personnel in his battery in application of first aid measures to the treatment of common injuries, diseases, and illnesses.
- e. Instruct personnel in antimalaria control, water purification and prevention of trench foot.

148. Camouflage Noncommissioned Officer

Knowledge of—

- a. Form, shadow, texture, and color as they apply to camouflage.

- b.* Types of films used in aerial cameras and their effectiveness.
- c.* Common breaches of camouflage discipline.
- d.* Methods of wiring-in roads and trails to further camouflage discipline.
- e.* Camouflage principles to be followed when operating in desert, snow, or wooded terrain.

Ability to—

- a.* Correct the camouflage of artillery installations using aerial photographs and aerial reconnaissance.
- b.* Construct dummy positions.
- c.* Garnish nets using artificial or natural materials.
- d.* Erect nets using flat top or drape method.
- e.* Instruct personnel in his battery in camouflage technique.

149. Chemical Noncommissioned Officer

Knowledge of—

- a.* Methods of employing chemical agents.
- b.* First aid for personnel injured by chemicals.
- c.* Protective clothing that may be issued to a battery.
- d.* Methods of marking an area contaminated by chemicals.
- e.* Warning systems for chemical attack.

Ability to—

- a.* Identify the various types of chemical agents.
- b.* Decontaminate matériel, equipment, and areas subjected to chemical attack.
- c.* Construct gas-proof shelters.
- d.* Repair gas masks using tools and equipment available to the battery.
- e.* Instruct personnel in his battery in the subjects listed above.

150. Mines and Booby Traps Noncommissioned Officer

Knowledge of—

- a.* The functioning of mines, booby traps, and demolitions including United States and foreign types.
- b.* Methods of placing mines, booby traps, and demolitions.
- c.* How to operate mine detector.

Ability to—

- a.* Detect, neutralize, and remove enemy mines, booby traps, and demolitions.
- b.* Instruct personnel in his battery in the subjects listed above.

151. Recorder (for executive at battery position)

Qualified as—

- a.* Gunner, primary weapon (par. 78).
- b.* Instrument operator (par. 89).

Knowledge of—

Fire commands and their execution.

Ability to—

- a. Record fire commands received by the battery.
- b. Check laying of individual pieces of the battery, without interrupting firing.

152. Guidon

Knowledge of—

- a. Manual of the guidon.
- b. Posts of guidon in formations and during marching.

Ability to—

Execute the following commands mounted or dismounted as prescribed for his organization:

- a. Carry guidon.
- b. Order guidon.
- c. Parade rest with guidon.
- d. Present guidon.
- e. Salute with guidon.

153. Computer (battery firing chart)

Qualified as—

Horizontal control operator and vertical control operator (par. 133).

CHAPTER 4

STANDARDS FOR FUNCTIONAL TEAMS

Section I. GENERAL

154. General

Standards for functional teams prescribed in this section cover principal duties only. Each team should be so organized and trained as a team that it will function efficiently and, in addition, be able to:

a. Provide for cover and concealment of personnel of the team and maintain camouflage discipline.

b. Provide field fortifications suitable to the functions of the team.

c. Maintain security on the march and in position; maneuver and fight in defense of its position under the direction of its leader by means of small arms, grenades, and rocket launchers.

d. Maintain sanitation in areas occupied by the team.

e. Provide for first echelon maintenance of equipment and vehicles used by the team.

f. Provide for the orderly arrangement of equipment used by the team and prepare equipment for transportation or storage.

g. Utilize available shelter and provide for the supply and feeding of the team when it is operating away from the maintenance section of the unit.

h. Decontaminate team equipment if subjected to chemical attack.

i. Assist in the planning of training exercises for the team or subordinate teams.

j. Report to appropriate commanders or their representatives the nature of the training or tactical operations in progress.

k. When ordered by competent authority, to destroy the matériel, vehicles, and equipment of the team quickly and beyond possibility of use by the enemy.

Section II. ALL BATTERIES

155. Battery Administration Personnel

Ability to—

a. Keep informed at all times as to the status of personnel in

the battery and special administrative requirements affecting the organization.

b. Select position for and organize the battery rear echelon.

c. Cooperate with unit personnel section in the requisitioning, replacement, and allocation of personnel, based upon their civilian and military qualifications and the needs of the organization.

d. Provide for systematic detailing of enlisted men to special duties in accordance with existing regulations and considering the needs of the organization.

156. Battery Mess Personnel

Ability to—

a. Select location and organize a field kitchen.

b. Operate a kitchen in the field in the darkness, when the concealment of lights is necessary.

c. Apply principles of sanitation in and around kitchen, supervise the care of kitchen equipment, and provide facilities for cleaning individual mess equipment.

d. Prepare well cooked meals in the field or on the march.

e. Supervise the serving of food to insure that the personnel are not exposed to observation and attack by air or ground forces.

f. Apportion servings to insure that each member of the unit receives an equable share and to insure that food is served to men who are unable to leave their posts of duty.

g. Maintain an adequate stock of food and mess supplies.

h. Handle properly all types of rations which may be issued to the battery.

i. Keep battery commander informed as to the status of the mess, rations, cooking fuel, and water in the battery.

157. Battery Supply Personnel

Ability to—

a. Maintain records showing current inventory and condition of equipment on hand as compared to that authorized in Tables of Equipment or especially authorized the organization.

b. Maintain as complete and adequate a stock of supplies as is consistent with orders or with the situation.

c. Load and unload battery supplies and supply equipment in an efficient manner.

d. Keep the battery commander informed as to the status of supply in the battery.

158. Battery Motor Maintenance Team

The motor maintenance team consists of all personnel of the battery maintenance section whose duty is to perform second echelon maintenance and repair of the vehicles of the battery.

Ability to—

a. Receive, inspect, and service vehicles assigned to the battery.

- b.* Occupy and organize with minimum delay the area designated for the battery motor maintenance team.
- c.* Determine mechanical condition of all vehicles in the battery by systematic inspection.
- d.* Initiate requests for supplies needed, at the proper times.
- e.* Perform authorized maintenance services upon all vehicles in the battery, following the prescribed schedule, or as the tactical situation permits.
- f.* Perform emergency roadside repairs.
- g.* Supervise and perform field expedients, to include simple rigging and use of the winch.
- h.* Keep required forms, records, and reports pertaining to motor transport.
- i.* Prepare, load, and secure vehicles and accessories for rail and water transport.
- j.* Keep the battery commander informed of the status and maintenance of vehicles and equipment.

159. Battery Stable Team

The stable team consists of all personnel of the battery maintenance section concerned with stable and picket line duties.

Ability to—

- a.* Plan and supervise the receipt, segregation, care, and training of remounts.
- b.* Assign duty for animals based upon conformation, temperament, and physical condition.
- c.* Maintain required animal records and reports.
- d.* Feed, water, and otherwise care for animals properly.
- e.* Plan requirements for grain and forage; supplies for saddlers and horseshoers; and stable and picket line operation and maintenance. Initiate requests for supplies needed.
- f.* Select and supervise sites in the field for watering points, picket lines, grain and forage storage and distribution.
- g.* Plan and supervise movement of animals by truck, rail, and water transport.
- h.* Keep commander informed as to status and condition of animals and equipment.

160. Machine Gun Squad

Ability to—

- a.* Occupy position rapidly or displace from position rapidly and efficiently.
- b.* Deliver quick and accurate fire upon aerial or ground targets from camouflaged positions.
- c.* Handle and protect ammunition.
- d.* Cross difficult terrain, using simple pioneer methods.
- e.* Communicate with other squads or individuals beyond range of voice by means of visual, sound, and wire systems.

Section III. GUN OR HOWITZER BATTALION

161. Headquarters Battery

a. BATTALION PERSONNEL SECTION.

Ability to—

(1) Requisition and recommend assignment of personnel to organizations in accordance with civilian experience and military training of individuals and needs of the organizations.

(2) Supervise and execute preparation and maintenance of such forms and records pertaining to personnel as are required in the battalion.

(3) Collect, consolidate, and forward personnel and administrative reports through proper channels when called for.

(4) Organize and coordinate activities of battery clerks when centralized or when the commander so directs.

(5) Assist the commander in complying with all regulations, orders, and directives which affect personnel.

(6) Keep the commander informed of the status of personnel in the battalion and special administrative requirements affecting the unit.

b. INTELLIGENCE AND RECONNAISSANCE TEAM. The intelligence and reconnaissance team consists of the necessary personnel drawn from the operations section and communication platoon of headquarters battery whose function it is to assist the commander by reconnaissance and the collection and dissemination of military information. This team is supervised by the S-2 of the unit.

Ability to—

(1) Keep the commander informed, by means of map and photo studies, and ground and air reconnaissance, as to:

(a) Routes and their suitability.

(b) Position areas and their characteristics.

(c) Location of observation points in probable zones of action.

(2) Prepare for occupation of position; to include marking of routes and installations, detection and removal of mines and marking of mined and cleared areas.

(3) Prepare plans explaining the employment of the available observation to supported units and the necessity of gaining or holding terrain features for the purpose of maintaining or improving observation.

(4) Prepare plans for coordination of zones of observation so as to cover effectively the zone of action of supported unit.

(5) Prepare plan of anticipated survey requirements to make the most effective use of observation in locating artillery targets.

(6) Collect, record, interpret and evaluate military information, and disseminate this information.

(7) Supervise the intelligence activities of liaison sections and forward observer parties to insure an adequate picture of the enemy situation at all times.

(8) Interpret and evaluate information pertaining to targets and determine the proper application of artillery fires, inform the commander as to actual and probable location and suitability of targets, and recommend time and method of attack of targets.

c. FIRE DIRECTION TEAM. The fire direction team consists of the personnel, from the battalion operations and fire direction section and component batteries, and supervised by the S-3, who assist the battalion commander in directing the fire of his batteries.

Ability to—

(1) Set up and operate a fire-direction center in such manner that the necessary fires can be delivered on the proper target at the proper time.

(2) Prepare and use all types of firing charts. as prescribed in FM 6-40.

(3) Mass the fires of the battalion accurately on targets of opportunity, based on:

(a) The adjustment of a forward or air observer.

(b) The adjustment of an observer using ground observation methods.

(4) Adjust the fire of three batteries at once on three separate targets, without confusion or delay.

(5) Compute accurately and send commands to mass the fire of the battalion on a target accurately located on a firing chart within time prescribed in chapter 5.

(6) Maintain continuous fire support during the displacement of the battalion by echelon.

(7) Compute and apply corrections from all types of registration and corrections which include application of velocity error determined from meteorological messages.

(8) Maintain a record of and apply calibration corrections when applicable.

(9) Maintain accurate records of ammunition received, expended, and on hand within battalion.

(10) Maintain accurate record of fires executed, to include adjusted data, time fired, type of target, number of rounds expended, and effect reported.

(11) Keep firing chart posted with accurate locations of forward friendly elements.

(12) Compute data to conduct center of impact or high burst adjustment, and notify observers of approximate instrument directions.

(13) Prepare battery data sheets for prearranged fires, scheduled fires, and barrages, and keep batteries posted on latest corrections thereto.

(14) Operate all communication installations and equipment of the fire-direction center.

(15) Prepare overlays showing battalion fire capabilities for forwarding to higher headquarters.

(16) Prepare data for fires marked on map or overlay, or reported by photo coordinates, as prescribed in FM 6-40.

(17) Prepare overlay, map, or map substitute for liaison officer or forward observer, indicating locations of prearranged fires, base point, check points, and index points.

d. INSTRUMENT AND SURVEY SECTION.

Ability to—

(1) Perform and coordinate survey work within the battalion which will permit the prompt and accurate massing of fires of the battalion.

(2) Establish and extend any horizontal and vertical survey control which has been directed by a higher commander to the firing charts of the battalion.

(3) Establish direction control by astronomical methods.

(4) Prepare all types of firing charts from field survey and computations.

(5) Select and locate control points suitable for restitution.

e. BATTALION LIAISON SECTION.

Ability to—

(1) Establish and maintain continuous and effective liaison with supported or reinforced unit.

(2) Establish and maintain efficient and continuous communication with supported or reinforced unit, and prepare a simple road and area sketch showing location and route to same.

(3) Maintain effective control over forward observers of the battalion, and coordinate zones of observation so as to cover effectively the zone of action of supported unit.

(4) Insure that forward observer parties maintain contact with appropriate elements of supported units whenever practicable and consistent with primary mission.

(5) Anticipate future needs for observation, particularly with reference to possible displacements, to insure that effective observation is maintained over the sector of the supported unit at all times.

(6) Advise supported unit commander as to capabilities and limitations of supporting unit, assist him in formulating his plan by recommending the kinds, times, and duration of supported fires.

(7) Transmit quickly and accurately calls for fire support, and arrange for observation thereof whenever practicable.

(8) Indicate to supported unit commander terrain which is necessary or desirable to hold or capture in order to permit adequate artillery observation of the zone of fire.

(9) Keep supporting unit informed at all times as to the situation, especially the location of our own front lines and the plans and disposition of the supported or reinforced unit.

(10) Maintain the flow of military information between commanders of supported and supporting units.

(11) Report the effectiveness of fires.

(12) Function efficiently as forward observer party.

f. MESSAGE CENTER TEAM.

Ability to—

- (1) Clear messages through message center without delay.
- (2) Plan and execute synchronization of time.
- (3) Maintain record of and distribute promptly to the interested agencies Signal Operation Instructions and changes thereto.
- (4) Utilize channels of communication efficiently in accordance with existing instructions.
- (5) Distribute metro messages promptly.
- (6) Safeguard cryptographic systems and equipment.
- (7) Encode and decode messages.

g. WIRE SECTION.

Ability to—

- (1) Prepare the battalion wire plan.
- (2) Put the battalion wire plan into effect with minimum delay, using proper procedures and coordinating the activities of the wire personnel of subordinate organizations.
- (3) Cooperate with wire personnel of subordinate, adjacent, higher, and supported headquarters to achieve continuous maintenance of wire communications.
- (4) Maintain transmission security.
- (5) Cross difficult terrain, using simple pioneer measures.
- (6) Cooperate closely with the unit message center.
- (7) Maintain uninterrupted wire communication during command post movements.
- (8) Act as semaphore teams.

h. RADIO SECTION.

Ability to—

- (1) Prepare the battalion radio plan.
- (2) Establish radio stations promptly when the communication officer indicates time and place for opening stations.
- (3) Coordinate the activities of radio personnel of subordinate organizations.
- (4) Maintain net control and transmission security.
- (5) Assume entire traffic load of unit at any time.
- (6) Cooperate closely with the unit message center.
- (7) Act as semaphore and visual signaling team.

i. AIR OP PERSONNEL.

Ability to—

- (1) Adjust artillery fire from liaison airplanes upon prearranged targets, and report the location of and adjust artillery fire upon targets of opportunity.
- (2) Report the effect of concentrations.
- (3) Establish and maintain communication between the air-

plane and the ground by means of radio, visual signals, and drop and pick-up messages.

(4) Perform reconnaissance missions, and secure and forward intelligence information to the proper agencies.

(5) Identify friendly and hostile air and ground forces and their equipment.

(6) Displace the air OP and select, prepare, and occupy landing strips rapidly and efficiently.

(7) Provide local security for the landing strip, with the aid of such additional personnel as may be made available.

j. FORWARD OBSERVATION SECTION, ARMORED BATTALION.

Ability to—

(1) Drive tank; perform care and maintenance of tank.

(2) Act as forward observation section (par. 162 g).

(3) Place rapid and accurate fire of the tank gun upon moving or stationary targets by direct laying, either while the tank is in motion or standing still.

(4) Deliver accurate fire with the tank gun by indirect laying with minimum delay.

(5) Place rapid and accurate fire of the machine gun and small arms upon ground or aerial targets.

(6) Maneuver with tank formations maintaining close liaison with the supported tank commander.

(7) Communicate with other tanks, with supporting artillery units, with supported units, and with aircraft, using visual means, radio, or wire.

(8) Reconnoiter and report conditions of the terrain or disposition of the enemy.

(9) Take advantage of terrain and the cover and concealment it affords.

(10) Cross difficult terrain, using simple pioneer measures.

(11) Handle and care for ammunition.

(12) Extinguish fires in the tank.

162. Gun or Howitzer Battery

a. FIRING BATTERY HEADQUARTERS (FIRE CONTROL SECTION).

Ability to—

(1) Lay the battery by compass, base angle, aiming point and deflection, airplane, rocket, or high burst.

(2) Establish and maintain communication within the battery position.

(3) Keep records required at the post of the executive, including fire schedules, the recorder's sheet, ammunition expenditures and status, messages, information on the condition of the matériel, and data on minimum elevations.

(4) Assist in boresighting pieces by the aiming circle method when prescribed for the piece with which the battery is armed.

(5) Set up and maintain the firing chart, and assist in position area survey.

(6) Convert sensings into fire commands.

(7) Plan and supervise the organization and improvement of the battery position.

(8) Plan and supervise the care and maintenance of matériel by the gun sections.

(9) Organize the security system for the battery position.

(10) Plan for the detection and removal of mines and booby traps, and the marking of mined and cleared areas.

(11) Plan and coordinate the placing of obstacles and mine fields for close-in defense of the battery position.

(12) Plan and supervise booby-trapping of the position area if forced to withdraw.

b. GUN OR HOWITZER SECTION.

Ability to—

(1) Occupy position or displace from position rapidly and efficiently.

(2) Deliver accurate fire by indirect laying with minimum delay.

(3) Deliver accurate fire by direct laying, opening fire under the most favorable tactical conditions.

(4) Handle and protect ammunition.

(5) Cross difficult terrain, using simple pioneer measures.

(6) Place obstacles and mine fields for close-in defense, as directed by the executive.

(7) Place booby traps in the section area, as directed by the executive, if forced to withdraw.

(8) Perform independent missions, such as a roving gun mission.

c. AMMUNITION SECTION.

Ability to—

(1) Receive, transport, inspect, sort, care for, and issue ammunition.

(2) Construct shelter for and camouflage the battery ammunition dump.

(3) Maintain camouflage discipline in receiving and issuing ammunition.

(4) Destroy ammunition quickly and efficiently when so ordered.

(5) Cross difficult terrain, using simple pioneer measures.

d. INSTRUMENT, SURVEY, AND RECONNAISSANCE TEAM.

Ability to—

(1) Perform artillery survey operations either independently or in conjunction with battalion survey personnel.

(2) Initiate survey on assumed control, complete survey on that control, and transfer to survey control furnished later by higher unit.

(3) Initiate survey on control furnished by higher unit and complete the survey or portion of the survey assigned by higher unit

(target area survey, connection survey, position area survey).

(4) Obtain survey results within the following standards of accuracy:

(a) Light and medium artillery battalions.

1. 1 in 200 for position area survey.
2. 1 in 500 for connection survey.
3. 1 in 500 for target area base length.
4. 1 in 200 for target locations.
5. Direction obtained for guns correct within 3 mils.

(b) Heavy artillery battalions.

1. 1 in 1000 for position area survey.
2. 1 in 1000 for connection survey.
3. 1 in 1000 for target area base length.
4. 1 in 500 for target locations.
5. Direction obtained for gun correct within 1 mil.

(5) Perform field survey, record data obtained, and compute and interpret that data for entry upon a firing chart—battlemat, photomat, or grid sheet.

(6) Observe registration upon a point, center of impact, or high burst in order to determine chart corrections from the data obtained.

(7) Operate a target area base to locate targets of opportunity and points necessary for the firing of barrages.

(8) Perform map and ground reconnaissance.

(9) Employ visual signaling essential to the execution of survey work.

e. WIRE TEAM. The wire team comprises all battery personnel required for installation, operation, and maintenance of the wire communication of the battery.

Ability to—

(1) From a few simple instructions put a battery wire plan into effect with minimum delay.

(2) Cooperate with wire personnel of adjacent, higher, and supported headquarters to achieve continuous maintenance of wire communication.

(3) Maintain transmission security.

(4) Cross difficult terrain, using simple pioneer measures.

(5) Cooperate closely with the unit message center.

(6) Act as semaphore teams.

f. RADIO TEAM. The radio team comprises all battery personnel required for operation and maintenance of the radio communication of the battery.

Ability to—

(1) Establish radio stations promptly when the communication officer indicates time and place for opening stations.

(2) Maintain net control and transmission security.

(3) Maintain radio communication over long periods of sustained operation.

- (4) Assume entire traffic load of the organization at any time.
- (5) Cooperate closely with the unit message center.
- (6) Act as semaphore teams.

g. FORWARD OBSERVER PARTY.

Ability to—

- (1) Reconnoiter for and locate suitable observation posts, and routes thereto.
- (2) Establish and operate a forward observation post and conduct fire efficiently within the assigned zone of observation.
- (3) Install and maintain adequate communication with battery, battalion, and battalion liaison sections as directed.
- (4) Establish and maintain contact with supported unit as directed.
- (5) Work with the intelligence and reconnaissance team, keeping assigned zone of observation under continuous, intensive, and aggressive observation.
- (6) Maintain efficient observation during displacements of observation post.
- (7) Keep artillery liaison officer and battery or battalion headquarters informed of location of friendly elements within zone of observation, and such other information as directed.
- (8) Perform map and ground reconnaissance employing the principles of scouting and patrolling and methods of passive resistance.
- (9) Prepare a panoramic sketch of zone of observation.

163. Service Battery or Platoon

a. BATTALION SUPPLY SECTION.

Ability to—

- (1) Keep the commander informed as to the current status of equipment on hand as compared to that authorized in Tables of Equipment or especially authorized the organizations of the unit.
- (2) Keep the commander informed of the status of supply, or special requirements affecting supply of (or in) the battalion.
- (3) Prepare and maintain such forms and records pertaining to property and supply as are required in the battalion.
- (4) Collect, consolidate, or forward property and supply records and requisitions through proper channels when due or required.
- (5) Assist the commander in complying with all regulations, orders, and directives affecting supplies of all classes.
- (6) Obtain and distribute to batteries all required supplies which are available.
- (7) Load and unload efficiently all types of supplies which the section may be called upon to handle.
- (8) Perform blackout marches over extended distances using maps or map substitutes.

b. AMMUNITION TRAIN HEADQUARTERS.

Ability to—

(1) Supervise the drawing and delivery of ammunition in the prescribed amounts, calibers, kinds, component parts, and lots.

(2) Receive and consolidate ammunition reports, prepare reports with respect thereto, and forward the latter to the next higher authority in the chain of ammunition supply.

(3) Reconnoiter routes for supply and prepare a plan covering traffic circulation, estimates of transportation required, camouflage discipline, and necessary maps, sketches, or instructions.

(4) Prepare for approval pertinent parts of orders and other instructions regarding ammunition supply.

(5) Organize security measures for the ammunition train.

(6) Complete blackout marches over extended distances using maps or map substitutes.

c. AMMUNITION SECTION. (See ammunition section, gun or howitzer battery, par. 162 *c*.)

d. BATTALION MOTOR MAINTENANCE SECTION.

Ability to—

(1) Occupy and organize with minimum delay the area designated for the battalion motor maintenance section.

(2) Procure, store, distribute, and account for all motor vehicle supplies and parts.

(3) Perform second echelon maintenance services upon all vehicles assigned to the unit for supervision, following the prescribed schedule, or as the tactical situation permits.

(4) Perform emergency repairs.

(5) Return to service those vehicles which fail to operate satisfactorily by expeditious repair or by replacement of minor units or subassemblies.

(6) Coordinate the maintenance facilities within the battalion, and coordinate with higher headquarters for repairs beyond the scope of the battalion.

(7) Recover vehicles from the battlefield or other point of immobilization to an axis of evacuation.

(8) Supervise, generally, the operation and maintenance of motor vehicles and the keeping of maintenance records in the battalion.

(9) Supervise and perform field expedients to insure mobility, to include use of the winch and simple rigging.

(10) Keep the required forms, records, and reports pertaining to motor transport.

(11) Supervise loading and security of vehicles and accessories for rail and water transport.

164. Service Platoon, Parachute Battalion

a. SUPPLY, TRANSPORTATION, AND MAINTENANCE SECTION.
(See pars. 162 *c*, 163 *a*, *d*.)

Ability to—

- (1) Pack efficiently all types of supplies for parachute delivery.
- (2) Determine by frequent inspections that the authorized articles of equipment for each organization of the unit are complete and serviceable and that there is no waste, misuse or over-accumulation of such property.
- (3) Maintain a complete and adequate stock of supplies in compliance with existing directives.

b. MESS SECTION. (See par. 156.)

c. PARACHUTE MAINTENANCE SECTION (SEPARATE BATTALION).

Ability to—

- (1) Receive, transport, inspect, care for, repair, adjust, pack, and issue parachutes and equipment.
- (2) Construct containers for items not adaptable to delivery in standard containers.
- (3) Pack all items of supply, matériel, and equipment used by parachute artillery for parachute delivery.
- (4) Keep all records required in training manuals of the Airborne Center and in technical orders of Army Air Forces.
- (5) Maintain an adequate stock of supplies and equipment for repair of parachutes and containers.

165. Antitank and Antiaircraft Battery, Parachute Battalion

a. ANTITANK HOWITZER SECTION.

Qualified as—

Howitzer section (par. 162 *b*).

Ability to—

- (1) Communicate with other sections and personnel beyond range of voice by means of visual, sound, or wire systems.
- (2) Construct simple road blocks and antimechanized obstacles.
- (3) Employ a coordinated plan of attack upon hostile mechanized vehicles, using demolitions and secondary weapons.

b. ANTIAIRCRAFT GUN SQUAD. (See machine gun squad, par. 160.)

Section IV. ¹ OBSERVATION BATTALION

166. Headquarters Battery

a. OPERATIONS PLATOON.

Ability to—

- (1) Maintain appropriate records pertaining to flash and sound ranging target locations and disseminate this information to the appropriate units.
- (2) Post and maintain operations and situation maps.
- (3) Prepare appropriate overlays.

(4) Obtain and distribute maps and map substitutes to designated units.

(5) Establish survey information center for:

(a) Coordination of survey progress.

(b) Collection and cataloging of survey information.

(c) Dissemination of survey data to designated units.

(6) Prepare and forward to higher headquarters required periodic reports.

(7) Prepare, conceal, and provide local security for command post.

b. METEOROLOGICAL SECTION.

Ability to—

(1) Select position for and install meteorological station equipment.

(2) Prepare artillery and sound ranging meteorological messages by standard and by practical methods.

c. PERSONNEL SECTION. (See par. 161 *a.*)

d. SERVICE PLATOON. (See par. 163.)

e. MESSAGE CENTER SECTION, WIRE SECTION, RADIO SECTION. (See par. 161 *f, g, h.*)

f. TOPOGRAPHICAL PLATOON. (See par. 167 *c.*)

167. Observation Battery

a. FLASH RANGING OPERATIONS SECTION.

Ability to—

(1) Select and occupy observation posts and plotting centers rapidly and efficiently, and provide local security.

(2) Perform flash ranging locations and flash ranging adjustments, including high burst and center of impact registrations, and conduct fire by flash ranging.

(3) Operate as independent flash ranging teams and perform flash ranging missions by rapid methods.

(4) Maintain appropriate records pertaining to flash ranging procedures and target locations.

(5) Furnish battery headquarters or supported unit with concise, accurate, and timely information of all targets observed.

b. SOUND RANGING OPERATIONS SECTION.*

Ability to—

(1) Occupy sound ranging central and establish sound ranging outpost positions rapidly and efficiently.

(2) Perform sound ranging locations, sound ranging adjustments including center of impact registrations, and conduct fire by sound ranging methods.

*These standards are applicable to the separate sound ranging platoon (T/O and E 6-78S) as well as to the sound ranging sections within the field artillery observation battalion.

(3) Perform independent sound ranging missions by rapid methods.

(4) Maintain appropriate records pertaining to sound ranging procedures and target locations.

(5) Furnish battery headquarters or the supported unit with concise, accurate, and timely information of all targets observed.

c. FLASH RANGING OR SOUND RANGING TOPOGRAPHICAL SECTION.

Ability to—

(1) Perform map and ground reconnaissance for survey work.

(2) Plan, coordinate, and perform all survey operations necessary for the precise installations of sound ranging bases and flash ranging observation posts.

(3) Establish common survey control and declination stations for subordinate and supported units in areas in which combat is imminent, and extend this control into areas in which combat is likely to become imminent.

(4) Obtain survey results within the following degree of accuracy:

(a) Location of points to one part in 3000.

(b) Direction correct to within 20 seconds.

(5) Perform field survey, record data obtained, and compute and interpret that data for entry upon sound ranging or flash ranging plotting surfaces or for incorporation in the observation battalion survey control net.

d. WIRE SECTION AND RADIO SECTION. (See par. 162 *e, f.*)

Section V. HIGHER UNITS

168. Headquarters Battery

a. PERSONNEL SECTION.

Ability to—

Recommend to the commander and supervise as directed:

(1) General personnel policies.

(2) Assignment of officers.

(3) Assignment of enlisted personnel to, and their use within, units.

(4) Utilization of medical personnel.

(5) Utilization of chaplains and their assistants.

(6) Programs for special service teams.

(7) Policies regarding handling of mail.

(8) Billeting of units.

b. INTELLIGENCE AND RECONNAISSANCE TEAM.

Ability to—

(1) Keep the commander informed, by means of map and photo studies and ground and air reconnaissance, as to:

- (a) Routes and their suitability.
- (b) Position areas and their characteristics.
- (c) Location of observation points in probable zones of action.
- (2) Prepare studies explaining need of observation and the advisability of gaining or holding terrain features for observation.
- (3) Prepare plans for coordinating zones of observation, observation facilities, and alternate expedients so as to cover effectively the zone of action of supported unit.
- (4) Prepare plans for anticipated survey requirements which will be required for the location of targets.
- (5) Collect, record, and disseminate military information.
- (6) Interpret and evaluate military information concerning targets to determine the proper application of artillery fires; inform the commander as to actual and probable location and suitability of targets; and recommend time and method of attack of targets.
- (7) Record, file, and post on necessary forms and maps, as prescribed in FM 6-100, all information on enemy artillery (corps artillery team).

c. FIRE DIRECTION TEAM.

Ability to—

- (1) Establish and operate a fire-direction center for the artillery commander that the proper fires are delivered at the proper time.
- (2) Mass the fires of the division artillery, group, brigade, or corps accurately on targets of opportunity, based on:
 - (a) Adjustment by one battalion.
 - (b) Adjustment by an observation battery or battalion.
 - (c) Target reported by higher headquarters.
- (3) Prepare and use all types of firing charts, as prescribed in FM 6-40.
- (4) Assemble photos, prepare strip mosaics, and perform restitutions from verticals, as prescribed in FM 6-40.
- (5) Operate all communication installations and equipment of the fire-direction center.
- (6) Maintain accurate records showing the status of ammunition within the command and keep the commander informed as to the ammunition status.
- (7) Keep the commander informed as to fire missions executed and those scheduled and the ability of units to perform fire missions.
- (8) Use effectively the military intelligence obtained by the intelligence and reconnaissance team to plan fires for the artillery and to prepare scheduled fires.

d. INSTRUMENT AND SURVEY SECTION, DIVISION ARTILLERY OR BRIGADE.

Ability to—

- (1) Establish appropriate survey control for subordinate units in areas in which combat is imminent and extend this control in anticipation of the displacement during combat.

(2) Establish survey control with the following degree of accuracy:

- (a) 1 in 1000 for points in position area.
- (b) 1 in 500 for points in target area.
- (c) Direction correct within 1 mil.
- (3) Select and locate control points suitable for restitution.
- (4) Plan and coordinate survey of subordinate units.

e. METEOROLOGICAL SECTION, DIVISION ARTILLERY.

Ability to—

(1) Select position for and install meteorological station equipment.

(2) Prepare and transmit artillery meteorological messages by appropriate means.

f. MESSAGE CENTER SECTION. (See par. 161 f.)

g. WIRE SECTION.

Ability to—

(1) Prepare the wire plan for the approval of the unit commander.

(2) Execute the approved wire plan and coordinate the activities of subordinate unit wire sections.

(3) Cooperate with wire personnel of subordinate, adjacent, higher, and supported headquarters to achieve continuous maintenance of wire communications.

(4) Maintain transmission security.

(5) Cross difficult terrain, using simple pioneer measures.

(6) Cooperate closely with its unit message center.

h. RADIO SECTION.

Ability to—

(1) Prepare the radio plan for the approval of the unit commander.

(2) Establish radio communication as directed by the unit commander and coordinate the activities of subordinate unit radio sections.

(3) Maintain net control and transmission security.

(4) Maintain radio communication over long periods of sustained operation.

(5) Assume entire traffic load of the headquarters at any time.

(6) Cooperate closely with the unit message center.

i. AIR OP PERSONNEL.

Ability to—

(1) Adjust artillery fire from liaison airplanes upon prearranged targets and report the location of an adjust artillery fire upon targets of opportunity.

(2) Report the effect of concentrations.

(3) Establish and maintain communication between airplane

and the ground by means of radio, visual signals, and drop and pick-up messages.

(4) Perform reconnaissance missions, and secure and forward intelligence information to the proper agencies.

(5) Identify friendly and hostile air and ground forces and their equipment.

(6) Displace the air OP, and select, prepare, and occupy landing strips rapidly and efficiently.

(7) Provide local security for the landing strip.

(8) Make technical inspections of aircraft to determine that they are maintained in an airworthy condition and in compliance with applicable directives.

j. SPECIAL SERVICE TEAM, DIVISION ARTILLERY AND GROUP.

Ability to—

(1) Maintain reference material as up-to-date as possible for orientation talks, lectures, moving pictures, etc., for use by organization and unit commanders, whenever called for.

(2) Constantly revise and have ready plans and programs for entertainment, recreation, participation in sports and games by troops before arrival at rest areas, training areas, new theaters of operations, etc.

(3) Gain and maintain contact with higher headquarters, to procure and replace recreational and athletic equipment and facilities, as well as to acquire information of additional recreational opportunities.

(4) Furnish suggestions, advice, and help to commanders of subordinate units, special service officers, and athletic officers.

(5) Coordinate recreational and athletic activities of lower units within the command.

(6) Keep the commanding officer informed as to the welfare, morale, and recreational desires of the troops. Report to him on the degree of success attained in former recreational and entertainment (morale) endeavor, with recommendations for improvement.

k. SUPPLY SECTION.

Ability to—

(1) Keep the commander informed as to the current status of equipment and supplies in, and available to, subordinate units; and recommend the allocation of available supplies to the subordinate units.

(2) Supervise schedules for maintenance of equipment and supplies as directed by the commander.

(3) Keep commander and unit ammunition officers informed as to actual and probable future availability of ammunition.

(4) Consolidate, and forward ammunition reports.

CHAPTER 5

TIME OF PERFORMANCE STANDARDS

Section I. GENERAL

169. General

a. CONDITIONS OF SERVICE. This section presents time of performance standards for various operations performed by batteries and the functional teams of field artillery units. These time of performance standards are guides as to what trained organizations may be expected to accomplish under the following conditions:

(1) Terrain and weather are favorable and only minimum pioneer work is required.

(2) Organizations and teams at full strength.

(3) Supplies and equipment complete according to authorized allowances.

(4) Personnel not excessively fatigued at start of operation.

b. PROFICIENCY. All operations must be accomplished in accordance with the standards prescribed for the unit or functional team in chapter 4. For example, a 105-mm howitzer battery may occupy position in 35 minutes as prescribed in Operation 1, but fail to boresight all pieces. In such a case, it would fail to meet the standard for the prescribed operation. An inspection to determine the accuracy of performance of the operation must be an integral part of each time of performance test. *Accuracy of performance* must always take precedence over time of performance.

c. PLANNING. Many of the time of performance standards are shown primarily for planning rather than for testing the organizations or teams. Times for maintenance operations No. 12, 13, 50, and 51 are included only for planning purposes and should not be used to test the teams involved. Proficiency in maintenance of matériel, vehicles, and other equipment should never be judged on a time basis unless the test also includes a very comprehensive technical inspection to determine the quality of the work performed.

d. TIME. In the following operations, figures in the column designated TIME represent minutes unless otherwise indicated.

Section II. OCCUPATION, ORGANIZATION, AND MARCH ORDER OF POSITIONS

No.	Operation	Start	Stop	Organization or team	Time	
					Day	Night
1	Occupation and organization of position following prior reconnaissance; observation post established; flat tops erected (drapes for self-propelled); personnel trenches marked, and digging in progress; radio communication established, wire started.	When leading element arrives at position.	When camouflage nets are erected and unit is ready to open fire.	Gun or howitzer battery: Truck or tractor-drawn: Light----- Medium----- Heavy:----- 155-mm gun, 8-inch howitzer----- 8-inch gun, 240-mm howitzer***: Crane method*----- Winch method*----- Winch method**----- Self-propelled: Light----- Heavy----- Pack or airborne----- *Excavation for pieces prepared in advance. **When recoil and spade pits cannot be safely dug prior to emplacement. *** For times specified, Camouflage Set No. 8 is used as drape net only.	35 40 60 100 120 120 150 150 180 25 30 35	50 60 100 150 150 180 40 45 55
2	March order from operation No. 1 without warning order. Does not include picking up wire.	When ordered-----	When last element leaves area.	Gun or howitzer battery: Truck or tractor-drawn: Light----- Medium----- Heavy:----- 155-mm gun, 8-inch howitzer----- 8-inch gun, 240-mm howitzer: Winch method----- Crane method----- Self-propelled: Light----- Heavy----- Pack or airborne-----	10 15 35 120 105 10 10 15	20 30 60 150 135 15 15 30

3	Occupation and organization of command post and disposition of vehicles following prior reconnaissance; installations and vehicles camouflaged with drape nets and natural materials; trenches marked and digging in progress; basic wire system installed, trunks and long locals omitted, other communications by radio. March order from operation No. 3 without warning order.	When leading element arrives at position.	When officer in charge reports operation complete.	Headquarters battery, all units: Truck or tractor-drawn..... Armored..... Pack or airborne..... Observation battalion.....	30 25 30 30	50 45 50 50
4		When ordered.....	When last element leaves area.	Headquarters battery, all units: Truck or tractor-drawn..... Armored..... Pack or airborne..... Observation battalion.....	20 10 20 20	30 20 35 30
5	Occupation and organization of bivouac following prior reconnaissance; trenches started but not necessarily completed; installations and vehicles camouflaged with drape nets and natural materials; light and medium artillery and heavy self-propelled artillery in position for fire by direct laying.	When leading element arrives at bivouac area.	When officer in charge reports operation complete. (Each battery to be timed on its part of battalion operation.)	Gun or howitzer battery: Truck or tractor-drawn: Light..... Medium..... Heavy: 155-mm gun, 8-inch howitzer..... 8-inch gun, 240-mm howitzer..... Self-propelled: Light..... Heavy..... Pack or airborne..... Observation battery..... Service battery: Truck or tractor-drawn..... Self-propelled: Light..... Heavy*..... Pack or airborne*.....	45 45 45 45 45 50 25 30 45 40 35 40 40 45	70 70 70 75 40 50 60 60 60 60 60 60 60
6	March order from operation No. 5, including police of area and maintenance of sanitation.	When ordered.....	When last element leaves area. (Each battery to be	Headquarters battery, all units: Truck or tractor-drawn..... Self-propelled..... *Headquarters and headquarters and service battery. Gun or howitzer battery: Truck or tractor-drawn: Light.....	30 25 30 25	60 40

Section II. OCCUPATION, ORGANIZATION, AND MARCH ORDER OF POSITIONS—(continued)

No.	Operation Description	Start	Stop	Organization or team	Time	
					Day	Night
			timed on its part of battery operation.)	Medium----- Heavy----- 155-mm gun, 8-inch howitzer----- 8-inch gun, 240-mm howitzer----- Self-propelled: Light----- Heavy----- Pack or airborne----- Observation battery----- Service battery: Truck or tractor-drawn----- Self-propelled: Light----- Heavy*----- Pack*----- Headquarters battery, all units: Truck or tractor-drawn----- Armored----- Pack or airborne----- *Headquarters and headquarters and service battery.	30 35 60 30 30 40 40 30 30 30 40 35 35 40	60 65 90 60 60 60 60 50 60 60 60 60 60 60 60

Section III. FIRING BATTERY HEADQUARTERS AND THE FIRING BATTERY

No.	Operation Description	Start	Stop	Organization or team	Time	
					Day	Night
7	Attack target of opportunity from march column; forward observer party 1 to 2 miles ahead of battery, gun position readily available.	When target is designated to observer.	When first observable salvo is sensed.	Gun or howitzer battery: Truck or tractor-drawn: Light----- Medium----- 155-mm gun, 8-inch howitzer-----	10 15 60	20 30 90

8	Lay a four-piece battery by compass or base angle; all pieces visible and within voice range of instrument operator; pieces to be laid correct to within 1 mil; shifting of trails not required; instrument in position prior to test.	When compass or base angle is announced.	When all pieces are laid.	Self-propelled: Light..... Heavy..... Pack..... Firing battery headquarters.....	7 10 18 5	15 18 30 8
9	Attack moving target to flank by direct laying, going into position from march column.	When target is designated to chief of section.	When target hit or effect on target obtained.	Gun or howitzer section: Truck or tractor-drawn: Light..... Medium..... Self-propelled: Light..... Heavy..... Pack.....	4 7 3 4 6	
10	Attack moving target to rear by direct laying, from a location which permits weapon to be turned 180 degrees.	When target is designated to chief of section.	When target hit or effect on target obtained.	Gun or howitzer section: Truck or tractor-drawn: Light..... Medium..... Self-propelled: Light..... Heavy..... Pack or airborne.....	1 3 1 1.5 1	
11	Fire 10 rounds (drill ammunition) at different deflections, elevations, and time fuze settings; same charge; changes in deflections, elevations, and time settings to be typical for time bracket adjustment; data announced from prepared cards.	When initial fire commands are given.	When last round is fired. (Time required for unloading of drill projectile and charges should be deducted from total time.)	Gun or howitzer section: Truck or tractor-drawn: 105-mm howitzer..... 4.5-inch gun..... 155-mm howitzer or gun..... 8-inch howitzer..... 8-inch gun..... 240-mm howitzer..... Self-propelled: 105-mm howitzer..... 155-mm gun..... Pack or airborne: 75-mm howitzer.....	3 4 5.5 10 15 20 20 3 5.5 2	4 5 6 15 20 30 4 6 3

Section III. FIRING BATTERY HEADQUARTERS AND THE FIRING BATTERY—(continued)

No.	Operation Description	Start	Stop	Organization or team	Time	
					Day	Night
12	Perform after-firing care and maintenance of gun or howitzer and carriage; piece in position; clean and lubricate; disassemble and assemble breech and firing mechanism; inspect weapon; all materials and tools available at position.	When ordered-----	When chief of section reports operation complete.	Gun or howitzer section: Truck or tractor-drawn: 105-mm howitzer----- 4.5-inch gun, 155-mm howitzer----- 155-mm gun, 8-inch howitzer----- 8-inch gun, 240-mm howitzer----- Self-propelled: 105-mm howitzer (armament only)----- 155-mm gun (armament only)----- Pack or airborne: 75-mm howitzer-----	30 35 45 60 60	40 45 60 75
13	Perform 6-months inspection and maintenance of howitzer and carriage; piece prepared for action in gun park; clean and lubricate, as authorized, all parts and assemblies; prepare for ordnance inspection; all materials and tools available in park.	When ordered-----	When chief of section reports operation complete.	Gun or howitzer section* Truck or tractor-drawn: 105-mm howitzer----- 4.5-inch gun, 155-mm howitzer----- 155-mm gun, 8-inch howitzer----- 8-inch gun, 240-mm howitzer----- Self-propelled: 105-mm howitzer (armament only)----- 155-mm gun (armament only)----- Pack or airborne: 75-mm howitzer----- *Assisted by artillery mechanic.	30 45 30	40 60 40

Section IV. FORWARD OBSERVER PARTY

14	Registration by precision adjustment on check point at least 1500 yards from base point; base deflection recorded;	When target is designated to observer on ground.	Forward observer party.
----	--	--	-------------------------

approximate location of battery given; GT range about 5000 yards for light and medium artillery; about 15,000 yards for heavy artillery.

Forward observation methods; observer within 1000 yards of target. (Not applicable to 240-mm howitzer or 8-inch gun.)

Lateral observation post methods; observer within 3500 yards of target; angle T 200 to 500 mils. (For 240-mm howitzer, 8-inch gun, the observer within 6000 to 8000 yards of target.)

15

Following registration with time fuze in operation No. 14, determine time correction, for zero height of burst, either forward observation or lateral observation post methods. (Not applicable for 240-mm howitzer or 8-inch gun.) Forward observation methods, observer within 1000 yards of target.

When last round of adjustment is sensed.	Light.....	8 plus time of flight for all rounds.
	Medium.....	10 plus time of flight for all rounds.
	155-mm gun, 8-inch howitzer.....	15 plus time of flight for all rounds.
When adjusted data are determined.	Light.....	10 plus time of flight for all rounds.
	Medium.....	12 plus time of flight for all rounds.
	155-mm gun, 8-inch howitzer.....	15 plus time of flight for all rounds.
	240-mm howitzer, 8-inch gun.....	18 plus time of flight for all rounds.
When command is given.	Forward observer party.	
	Light.....	4 plus time of flight for all rounds.
	Medium.....	5 plus time of flight for all rounds.

Section IV. FORWARD OBSERVER PARTY—(continued)

Operation		Start	Stop	Organization or team	Time
No.	Description				
16	Lateral observation post methods; observer within 3500 yards of target; angle <i>T</i> 200 to 500 mils. Attack target of opportunity with percussion fire; target within 500 to 800 yards of base or check point previously registered upon; gun-target range about 5000 yards for light and medium artillery, about 15,000 yards for heavy artillery. (Not applicable for 240-mm howitzer or 8-inch gun.) Forward observation methods; observer within 1000 yards of target.	When target is designated to observer on ground.	When observer calls for effect.	155-mm gun, 8-inch howitzer	8 plus time of fight for all rounds.
				Light	5 plus time of fight for all rounds.
				Medium	6 plus time of fight for all rounds.
				155-mm gun, 8-inch howitzer	9 plus time of fight for all rounds.
				Forward observer party	
				Light	4 plus time of fight for all rounds.
				Medium	5 plus time of fight for all rounds.
				155-mm gun, 8-inch howitzer	8 plus time of fight for all rounds.

17	Lateral observation post methods, observer within 3500 yards of target; angle, <i>T</i> 200 to 500 mils.	-----	When observer gives command for first volley of fire for effect.	Light-----	5 plus time of flight for all rounds.
		-----	-----	Medium-----	6 plus time of flight for all rounds.
		-----	-----	155-mm gun, 8-inch howitzer-----	9 plus time of flight for all rounds.
	Attack of target of opportunity with time fire; same conditions as in operation No. 16 (not same target). (Not applicable to 240-mm howitzer or 8-inch gun). Forward observation methods-----	Same as operation No. 16.	Same as operation No. 16.	Forward observer party.	-----
		-----	-----	Light-----	6 plus time of flight for all rounds.
		-----	-----	Medium-----	8 plus time of flight for all rounds.
18	Lateral observation post methods-----	-----	-----	155-mm gun, 8-inch howitzer-----	11 plus time of flight for all rounds.
		-----	-----	Light-----	8 plus time of flight for all rounds.
		-----	-----	Medium-----	9 plus time of flight for all rounds.
	Attack moving target to front by direct laying while tank is moving; tank gun not loaded prior to appearance of target.	When target appears-----	When target hit or effect on target obtained.	155-mm gun, 8-inch howitzer-----	14 plus time of flight for all rounds.
		-----	-----	Forward observation section, armored battalion.	1
		-----	-----	-----	-----

Section IV. FORWARD OBSERVER PARTY—(continued)

No.	Operation Description	Start	Stop	Organization or team	Time	
					Day	Night
19	Adjust fire of tank gun on point target by indirect methods; angle T 200 to 500 mils, range 1500 to 2000 yards; radio communication.	When target designated to observer on ground.	When command fire for effect is given.	Forward observation section, armored battalion.	8	

Section V. FIELD ARTILLERY BATTERY AND BATTALION SURVEY

20	Starting from point of known coordinates, determine coordinates of point about 1000 yards away; three legs to traverse; level ground requiring tape-men to break tape not more than three times and no brush cutting; three direct and three reverse transit readings on angles; coordinates computed using logarithms.	When coordinates of known point are given and unknown point is indicated on ground.	When coordinates are determined.	Instrument and survey section, headquarters battery, gun or howitzer battalion.	60	120
21	Perform complete battalion grid sheet survey; control data for points A and B furnished survey officer; not more than 1000 yards connection traverse; not more than 2000 yards position area traverse; in open terrain, providing suitable points for performance of target area and position area survey.	When control data are furnished survey officer.	When batteries, base point, two check points, and point A have been located horizontally and vertically on chart.	Instrument and survey section, headquarters battery, gun or howitzer battalion.	240	480
22	Perform position area survey; 1000 yards of traverse; stake out orienting line; put in executive's stakes and place marks.	When ordered-----	When operation is complete.	Instrument and survey section, headquarters battery, gun or howitzer battalion.	90	180
				Instrument and survey section, gun or howitzer battery.	90	180

23	Consolidate field survey notes into firing chart; to include three battery positions, one observation post, one base point, and two check points; determine base angles; sketch furnished with notes will not exceed 11 legs of connection and position area surveys.	When completed notes are given section.	When chart is prepared and altitudes and base angles are available.	Instrument and survey section, headquarters battery, gun or howitzer battalion.	70	70
24	Locate a point in target area from established base with oriented instruments—	When target is pointed out on ground from one end of base. (If in conjunction with high burst or center-of-impact registration, start time when instrument reading for last round is obtained.)	When instrument reading, range, and vertical angle are announced.	Instrument and survey section, headquarters battery, gun or howitzer battalion.	4	5
	By slide rule.				10	15
	By logarithms.					

Section VI. FIRE DIRECTION TEAM

25	Construction of observed fire chart, grid sheet plot using back azimuths. (Not applicable to 240-mm howitzer and 8-inch gun.)	When adjusted data have been announced for all batteries.	When base point and all battery positions are plotted, base lines and base line extensions properly drawn.	Fire direction team, battalion-----	3	3
26	Compute and send to batteries commands to mass fire of battalion on accurately located target.	When target is designated.	When all computers have completed commands to batteries.	Fire direction team, battalion-----	2.5	2.5
27	Compute and send to batteries commands to mass fire of battalion follow.	When computer of adjusting battery	When all computers have completed	Fire direction team, battalion-----	1.5	1.5

Section VI. FIRE DIRECTION TEAM—(continued)

No.	Operation Description	Start	Stop	Organization or team	Time	
					Day	Night
28	ing adjustment by one battery. Compute deflection corrections and graphical firing table setting from metro message; all necessary data at hand prior to receipt of message.	announces "Data for replot." When metro message is received.	commands to batteries. When deflection correction scale is completed and graphical firing table settings made by computers. When both instrument readings are announced.	Fire direction team, battalion-----	5	5
29	Determine readings to orient observers' instruments for short base intersection of center-of-impact registration; all prior plotting completed.	When location of center of impact is announced.	When deflection correction change and <i>K</i> change are announced.	Fire direction team, battalion-----	1.5	1.5
30	Given metro deflection correction change and <i>K</i> change.	When adjusted elevation and adjusted deflection are announced.	When deflection correction change and <i>K</i> change are announced.	Fire direction team, battalion-----	1.5	1.5
31	Prepare data sheets for all batteries for four previously plotted concentrations; no corrections to be entered.	When concentration numbers are announced.	When all data sheets are completed.	Fire direction team, battalion-----	7	7
32	Restitute target from air photo; photo and firing chart prepared for restitution.	When target is designated on air photo.	When coordinates of target are announced.	Fire direction team, higher units-----	1	1
33	Plot 12 concentrations to nearest 10 yards and prepare overlay for these fires.	When data for all targets are announced.	When overlay is completed.	Fire direction team, higher units-----	6	6

Section VII. COMMUNICATIONS

34	Call, transmit, and acknowledge receipt (by operator) of 10 messages of 10 code groups, ciphers, or clear text words. By telephone through one switching central (clear text). By telegraph. By radiotelephone (two-letter code group). By radiotelegraph (five-letter code group). Semaphores: transmission and receipt of a 50-character message in Fire Control Code. (Front sign, numerals follow sign, etc., count as characters sent.) Panels: three-man panel team to transmit and obtain receipt for one panel display per minute for five minutes. Display from CCBP-8*; plane at about 600 feet. Set up Converter M-209 and encipher or decipher 10 five-letter code groups.	When ordered.....	When receipt of all messages has been acknowledged.	Wire section, all units.....	50	55
35		When receiving operator indicates he is ready to receive.	Sender acknowledges receipt.	Wire section, headquarters battery, battalion and higher.	30	35
36		When plane acknowledges, "I have a message for you."	When plane receipts for fifth group.	Radio section, all units.....	55	60
37		When ordered.....	When message is enciphered or deciphered.	Radio section, headquarters battery, battalion and higher. Radio and wire, teams and sections, battery and battalion.	40	45
38		When message is delivered to message	When message leaves message center.	Air OP personnel, all units.....	5	
39		When ordered.....	When system is completed.	Radio section, all units.....	20	20
				Message center sections, all units.....	1	1
				Message center sections, all units.....	1	1
				Wire section, battalion and higher (five men).		

HM

*U. S. Combined Communication Board Publication No. 8, *Combined Panel System*, August 1943.

Section VII. COMMUNICATIONS—(continued)

No.	Operation Description	Start	Stop	Organization or team	Time	
					Day	Night
40	tion center about 25 yards; switching central within 120 yards of message center and fire-direction center.	When ordered.	When crossing completed.	Wire section, all units.		
	Using cable assembly CC-345.				15	25
	Without cable assembly.				30	40
	Laying wire across road and tagging lines.				10	15
	Culvert crossing; 30-inch culvert 30 feet long; line previously laid across road, necessitating cutting line and splicing on far side of road.					
	Parallel crossing; 30-foot road.			(one man)		
	Lance pole crossing; 30-foot road.			(two men)	15	20
	Buried crossing; wire tied prior to operation; 20-foot hard clay road.			(two men)	5	10
	Overhead crossing.			(one man)	10	15
				(two men)	6	10

Section VIII. AIR OP PERSONNEL

No.	Operation Description	Start	Stop	Organization or team	Time
41	Adjustment of fire on well defined target, approximately located; target within 7000 yards of landing strip.	When airplane takes off.	When observer calls for effect.	Air OP personnel	

Altitude 600 feet.					6 plus time of flight for all rounds.
Altitude 2000 feet.					11 plus time of flight for all rounds.
42	Disassemble and load airplane on 2½-ton long or short wheel base, 6x6 trucks; no disassembly of landing gear or empennage. (This is not to be used for test purposes but as an estimate for planning.)	When disassembly operation is begun.	When airplane is loaded on trucks and ready for hauling.	Air OP personnel-----	100 140
43	Unload airplane from truck, assemble, and rig; landing gear and empennage already assembled. (For planning purposes only.)	When unloading operation is begun.	When airplane is ready for flight.	Air OP personnel-----	240 330
44	Replace landing gear vee and shock strut, and replace brake assembly on new vee. (For planning purposes only.)	When operation is begun.	When parts are re-placed.	Air OP personnel-----	90 120
45	Remove propeller from hub and replace. (For planning purposes only.)	When operation is begun.	When propeller is re-placed.	Air OP personnel-----	30 40
46	Perform daily flight inspection. (No repairs included in time.)	When operation is begun.	When records are completed.	Air OP personnel-----	35
47	Perform 25-hour inspection. (No repairs included in time.)	When operation is begun.	When records are completed.	Air OP personnel-----	90
48	Perform 50-hour inspection. (No repairs included in time.)	When operation is begun.	When records are completed.	Air OP personnel-----	225
49	Perform 100-hour inspection. (No repairs included in time.)	When operation is begun.	When records are completed.	Air OP personnel-----	360

Section IX. MOTOR MAINTENANCE

50	Perform 1000-mile or 50-hour inspection and maintenance of battery vehicles in the field; in compliance with TM 9-2810 using WD AGO Form No. 461 for wheeled and half-track vehicles	When road test begins.	When motorsergeant reports operation complete.	Battery motor maintenance team*: Trucks: ¼-ton, 4 x 4, (two-man team)----- ½-ton, 4 x 4, (two-man team)----- ¾-ton, 4 x 4, (two-man team)-----	8 9 8 9 8 9
----	--	------------------------	--	---	-------------------

Section IX. MOTOR MAINTENANCE—(continued)

No.	Operation Description	Start	Stop	Organization or team	Time	
					Day	Night
	and WD AGO Form No. 462 for full-track and tank-like wheeled vehicles; no repairs or replacement of parts. (For planning purposes only.)			1½-ton, 4 x 4, (two-man team)----- 2½-ton, 6 x 6 (four dual tires), SWB, w/winch (two-man team). 4-ton, 6 x 6 (four dual tires), SWB, w/winch (three-man team). 7½-ton, 6 x 6 (four dual tires), w/winch (three-man team). 10-ton, heavy wrecker, M1, 6 x 6, (three-man team). Half-track (basic) (three-man team). Tractors: Medium, M4, w/winch----- Medium, M5, w/winch----- Heavy, M6, w/winch----- Motor carriages: 105-mm howitzer, M7 (except armament). 155-mm gun, M12 (except armament). Crane, truck-mounted, M2: Carrier----- Turntable mechanism----- (50-hour inspection and maintenance). *Battery motor sergeant, motor mechanic, and driver. Battalion motor maintenance section*: Trucks: ¼-ton, 4 x 4, (two-man team)----- ¾-ton, 4 x 4, (two-man team)----- ¾-ton, 4 x 4, (two-man team)----- 1½-ton, 4 x 4, (two-man team)-----	9 11 10 12 10 8 12 12 22 7 7 10 7 10 14 10	10 12 14 15 14 9 15 15 25 10 10 14 10
51	Perform 6000-mile inspection and maintenance on battery vehicles in garrison in compliance with TM 9-2810, using WD AGO Form No. 461 for wheeled and half-track vehicles and WD AGO Form No. 462 for full-track and tank-	When road test begins.	When motor sergeant reports action complete.			16 18 18 20 20

like wheeled vehicles; no repairs or replacement of parts. (For planning purposes only.)

2½-ton, 6 x 6 (four dual tires), SWB, w/winch (three-man team).	20	20
4-ton, 6 x 6 (four dual tires), SWB, w/winch (three-man team).	22	22
7½-ton, 6 x 6 (four dual tires), w/winch (three-man team).	24	24
10-ton, heavy wrecker, M1, 6 x 6 (three-man team).	24	24
Half-track (basic three-man team).	24	24
Tractors:		
Medium, M4, w/winch (three-man team).	22	22
Medium, M5, w/winch (three-man team).	24	24
Heavy, M6, w/winch (three-man team).	26	26
Motor Carriages:		
105-mm howitzer M7 (except armament) (three-man team).	30	30
155-mm gun, M12 (except armament) (three-man team).	30	30
Crane, truck-mounted, M2:		
Carrier-----	22	22
Crane (100-hour inspection and maintenance).	12	12
*Battalion motor sergeant, motor mechanic, and driver.		

Section X. FIELD ARTILLERY OBSERVATION BATTALION

52	Set up sound recording set following selection of sound ranging central position.	When all sound recording equipment has been unloaded from vehicle.	When sound recording equipment, including arrestor AR-8, is set up and ready for testing.	Sound ranging operations section, sound recording team (three men).	12
53	Set up and grid the sound plotting board M1.	When all sound plotting equipment	When plotting board is ready for plotting.	Sound ranging operations section, sound plotting team (three men).	50

Section X. FIELD ARTILLERY OBSERVATION BATTALION—(continued)

No.	Operation Description	Start	Stop	Organization or team	Time	
					Day	Night
54	Determine target locations from developed oscillogram on a six-microphone straight base containing well defined first arrivals at all microphones from two guns firing simultaneously, one gun being approximately opposite the center of the base and the other opposite one flank of the base, both preferably affording small plots; plotting board prepared for type and size of base.	has been unloaded from vehicles and coordinates of microphones, azimuth, type, and size of base have been furnished sound plotting team. When oscillogram is handed oscillogram reader.	ting locations. When locations of both sound sources have been plotted and coordinates read.	Sound ranging operations section, sound plotting team. (eight men) (six men) (four men)	10 10 12 14	
55	Compute coordinates of a six-microphone curved sound base.	When coordinates of one microphone and azimuth of long chord of base are furnished computers.	When coordinates of all six microphones have been determined.	Sound ranging operations section, sound computing team; two men performing all computations as a check on each other.	50	
56	Compute coordinates of a six-microphone straight sound base.	When coordinates of one microphone, standard sub-base length in seconds, and azimuth of	When coordinates of all six microphones have been determined.	Sound ranging operations section, sound computing team; two men performing all computations as a check on each other.	20	

57	Installation of sound base; fairly level terrain permitting man to walk along line of base, and wire to be laid by wire-laying vehicle; soil suitable for digging with shovel; survey by direct methods. Rapid methods.	base have been furnished computers. When reconnaissance has been completed and vehicles with personnel and equipment have arrived at position.	When the platoon is ready to make sound locations.	Sound ranging platoon.	90
58	Precise methods. Set up and prepare plotting board M5 for four observation posts.	When all equipment is unloaded from vehicles and coordinates of observation posts furnished.	When plotting board is ready for plotting locations.	Forward echelon of platoon (15 men, two wire parties). Complete platoon (two wire parties)----- Flash ranging operations section, flash plotting team (two men).	350 15
59	Determine target location from observed readings, using plotting board M5; four observation posts; board set up and gridded. Install flash short base, not more than 600 yards long.	When all instrument readings are received from observers.	When target has been plotted, coordinates read, and site determined.	Flash ranging operations section, flash plotting team of two men and one computer to determine site.	2
60	Intervisible observation posts; terrain permits direct survey. Nonintervisible observation posts; terrain permits direct taping between observation posts and selected points. Intervisible observation posts; terrain does not permit taping but permits auxiliary base parallel to	When reconnaissance is completed and short base team has arrived at position.	When flash short base is ready for observing and plotting locations.	Flash ranging operations section, flash short base team (seven men).	45 60 90

Section X. FIELD ARTILLERY OBSERVATION BATTALION—(continued)

No.	Operation Description	Start	Stop	Organization or team	Time	
					Day	Night
61	flash base with both ends visible from observation posts. Install four observation posts about 1000 yards apart, flash ranging central, and connecting wire lines.	When reconnaissance is completed and vehicles with personnel and equipment have arrived at position. When balloon is released.	When platoon is ready to make flash locations.	Flash ranging platoon (with two wire parties).	250	
62	(a) Obtain a five-line meteorological message. (b) Obtain a 10-line meteorological message.	When coordinates of known point are given and unknown point is indicated on ground.	When final message has been encoded for distribution.	*Meteorological section, headquarters battery.	15	
63	Starting from point of known coordinates determine coordinates of point about 1000 yards away; three legs to traverse; level ground requiring tapemen to break tape not more than three times and no brush cutting; three direct and three reverse transit readings on angles; coordinates computed using logarithms.		When coordinates are determined.	Survey party, topographical section, headquarters battery.	50	100

*Applicable to headquarters battery, division artillery.

Section XI. GLIDER AND PARACHUTE BATTERY

64	Load and lash battery equipment in gliders.	When first piece of equipment arrives at loading ramp.	When all equipment is loaded and men are seated, ready for take-off.	Howitzer battery, glider battalion-----	30	45
65	Unlash and unload battery equipment	When last glider lands	When last piece of	Howitzer battery, glider battalion-----	5	10

66	from gliders. Load the battery equipment and prepare for take-off.	When first section arrives at loading ramp.	equipment is unloaded. When equipment is loaded and men are seated for take-off.	Howitzer battery, parachute battalion --	30	60
67	Assemble howitzers and prepare for action.	When first load is released from airplane.	When battery is prepared for action.	Howitzer battery, parachute battalion --	15	30

Section XII. MACHINE GUN SQUAD

68	Change from M3 tripod mount with elevator cradle M1 to M3 tripod mount, load new belt of ammunition into gun and open fire on ground target; gun emplaced with camouflage net over pit prior to test.	When target is designated.	When first rounds are fired.	Antiaircraft gun squad, cal .50 machine gun.	5	
69	Change from vehicle pedestal mount to ground tripod mount M3 with elevator cradle M1, emplace in pit and camouflage with drape nets. (Average soil, pit about 6 feet in diameter by 4 feet in depth).	When ordered.	When machine gun corporal reports, "In order."	Antiaircraft gun squad, cal .50 machine gun (three men).	300	

INDEX

	<i>Paragraphs</i>	<i>Pages</i>
Administrative and clerical.....	35-49	11
Agent.....	73	20
Agent, liaison.....	73	20
Air OP personnel.....	161 <i>i</i> , 168 <i>i</i>	49, 59
Air transport.....	9	4
All batteries.....	155-160	155
Ammunition.....	50-53	14
Clerk.....	53	15
Corporal.....	51	15
Handler.....	50	14
Section.....	162 <i>c</i> , 163 <i>c</i>	51, 54
Sergeant.....	52	15
Train, headquarters.....	163 <i>b</i>	53
Animal transport.....	10, 54-63	4, 16
Antiaircraft defense.....	11	4
Antiaircraft gun squad.....	165 <i>b</i>	55
Antitank and antiaircraft battery.....	165	55
Antitank defense.....	12	5
Antitank howitzer section.....	165 <i>a</i>	55
Armorer.....	97	27
Army organization.....	98	27
Athletic instructor.....	45	13
Automobile mechanic.....	105	30
Axeman, tapeman, and rodman.....	126	35
Battalion:		
Liaison section.....	161 <i>e</i>	48
Motor maintenance section.....	163 <i>d</i>	54
Personnel section.....	161 <i>a</i>	46
Supply section.....	163 <i>a</i>	53
Battery:		
Administrative personnel.....	155	43
Mess personnel.....	156	44
Motor maintenance team.....	158	44
Stable team.....	159	45
Supply personnel.....	157	44
Bugler.....	48	14
Camouflage, concealment, and cover.....	14	5
Camouflage noncommissioned officer.....	148	40
Cannoneer.....	77	22
Cannoneer drill.....	15	5
Cargador (and saddler).....	60	17
Chaplain's assistant.....	47	14
Chauffeur.....	104	29
Chemical noncommissioned officer.....	149	41
Chief:		
Computer, fire direction.....	137	38
Mechanic.....	108	30
Observer.....	114	32
Topographer.....	130	36
Chief of:		
Detail.....	93	26
Party.....	129	36
Section.....	85	24
Clerk:		
Ammunition.....	53	15
Battery, general, headquarters, operations, personnel, record, supply, typist.....	35	11
Code.....	74	21
Mail.....	36	11

	<i>Paragraphs</i>	<i>Pages</i>
Communication.....	16, 64-76	5, 18
Communication chief.....	76	21
Computer:		
Battery firing chart.....	153	42
Draftsman.....	112, 120, 124	31, 33, 34
Fire direction.....	136	38
Fire direction (sergeant).....	137	38
Flash ranging.....	112	31
Operations.....	124	34
Sound ranging.....	120	33
Survey.....	127	35
Conditions of service.....	7	3
Cook.....	39	12
Crane operator.....	106	30
Customs, courtesies, and discipline.....	17	6
Defense against chemicals.....	18	6
Definition of terms.....	2	1
Developer, photographer.....	116	32
Dismounted drill.....	19	6
Draftsman.....	131	36
Draftsman, topographic.....	133	37
Driver (all vehicles).....	104	29
Artillery.....	55	16
Half track.....	104	29
Pack animal.....	54	16
Scout car.....	104	29
Tank.....	104	29
Tractor.....	104	29
Truck, heavy.....	104	29
Truck, light.....	104	29
Electrician, storage battery.....	117	33
Entertainment director.....	46	13
Equipment.....	20	6
Field fortifications.....	21	7
Fire control instruments.....	22	7
Fire direction team.....	161c, 168c	47, 58
Firing battery headquarters (fire control section).....	162a	50
First aid noncommissioned officer.....	147	40
First sergeant.....	43	13
Flash:		
Ranging, chief.....	115	32
Ranging, operations section.....	167a	56
Ranging, topographical section.....	167c	57
Switchboard operator.....	113	32
Forward observation section.....	161j	50
Forward observer party.....	162g	53
Functional team standards.....	5	2
General mechanic.....	99	28
Guidon.....	152	42
Gun:		
(Howitzer) sections.....	77-85	22
Or howitzer battalion.....	161-165	46
Or howitzer battery.....	162	50
Or howitzer section.....	162b	51
Gunner:		
Antitank, and assistant.....	79	22
Bow.....	82	23
Machine gun, and assistant.....	82	23
Primary weapon.....	78	22
Tank.....	80	22
Handler, ammunition.....	50	14
Headquarters battery.....	161, 166, 168	46, 55, 57
Higher units.....	168	57
Horizontal control operator.....	133	37

	<i>Paragraphs</i>	<i>Pages</i>
Horseshoer	58	16
Hygiene, sanitation, and first aid	23	7
Individual standards	4	1
Instrument and reconnaissance	89-93	25
Instrument and survey corporal	145	40
Instrument and survey section	161 <i>d</i> , 168 <i>d</i>	48, 58
Instrument:		
Corporal	90	25
Man	145	40
Operator	89	25
Sergeant	91	26
Survey and reconnaissance team	162 <i>d</i>	51
Intelligence	25, 86-88	7, 24
And reconnaissance team	161 <i>b</i> , 168 <i>b</i>	46, 57
Corporal	87	25
Observer	86	24
Sergeant	88	25
Interior guard duty	24	7
Introduction	1-8	1
Liaison	94-96	26
Corporal	95	27
Private	94	26
Sergeant	96	27
Lineman, field	64	18
Machine gun corporal	83	23
Machine gun squad	160	45
Map reading and use of compass	26	8
Marches, halts, and bivouacs	27	8
Materiel: primary weapon	28	8
Mechanic:		
Army airplane and engine, battalion	109	30
Army airplane and engine, higher headquarters	110	31
Artillery	98	27
Artillery and general	97-101	27
Automobile	105	30
Chief	107	30
Electrical	121	33
General	99	28
Tank	105	30
Tractor	105	30
Mess:		
And supply, sergeant	40, 42	12
Section	164 <i>b</i>	55
Sergeant	40	12
Message center:		
Chief	75	21
Corporal	74	21
Team	161 <i>f</i> , 168 <i>f</i>	49, 59
Section, wire section, radio section	166 <i>e</i>	56
Messenger (and signalman)	73	20
Meteorological section	166 <i>b</i> , 168 <i>e</i>	56, 59
Meteorologist	102	29
Meteorologist sergeant	103	29
Meteorology	102, 103	29
Mines, booby traps, and demolitions	29	8
Mines and booby traps noncommissioned officer	150	41
Motor:		
Corporal	108	30
Mechanic	105	30
Noncommissioned officer	108	30
Sergeant	108	30
Supply, noncommissioned officer	107	30
Vehicle driving, care, and maintenance	30	8
Motors and airplane personnel	104-110	29
Observation battalion	111-130, 166, 167	31, 55, 56

	<i>Paragraphs</i>	<i>Pages</i>
Flash ranging.....	111-115	31
Operations.....	124-125	34
Sound ranging.....	116-123	32
Survey.....	126-130	35
Observation battery.....	167	56
Observer:		
Corporal, flash ranging.....	111	31
Flash ranging.....	111	31
Intelligence.....	84	24
Sergeant.....	114	32
Sergeant, flash ranging.....	114	32
Sound ranging.....	118	33
Operations, Nos. 1-69 (See table of contents, chapter 5)		
Operations:		
Corporal.....	134	37
Platoon.....	166a	55
Sergeant.....	125, 135	34, 37
Operations and fire direction.....	131-137	36
Operator:		
Crane.....	106	30
Instrument.....	89	25
Radio (radiotelephone).....	68	19
Radio (radiotelegraph).....	69	19
Switchboard.....	65	18
Telephone, field.....	64	18
Wrecker.....	105	30
Orderly.....	49	14
Orderly, stable.....	62	17
Organization of manual.....	3	1
Packer.....	56	16
Packer, parachute sergeant.....	139	38
Packmaster.....	61	17
Packmaster (and stable sergeant).....	61, 63	17, 18
Parachute.....	138-142	38
Maintenance, chief.....	142	39
Maintenance, section.....	164c	55
Packer.....	138	38
Packer, sergeant.....	139	38
Repairman.....	140	39
Repairman, sergeant.....	141	39
Pay, allowances, etc.....	31	8
Personnel section.....	166c, 168a	56, 57
Personnel sergeant.....	38	11
Physical training and conditioning.....	32	9
Platoon sergeant.....	84	24
Purpose and scope.....	1	1
Radio:		
Corporal.....	71	20
Electrician.....	70	20
Repairman.....	70	20
Sergeant.....	72	20
Section.....	161h, 167d,	49, 57
	168h	59
Team.....	162f	52
Radiotelegraph operator.....	69	19
Radiotelephone operator.....	68	19
Rail movement.....	33	9
Reconnaissance and instrument corporal.....	92	26
Reconnaissance sergeant.....	93	26
Recorder.....	119, 151	33, 41
Armored battery.....	132	37
Sergeant.....	122	34
References.....	8	3
Repairman, radio.....	70	20
Repairman, utility.....	99	28

	<i>Paragraphs</i>	<i>Pages</i>
Saddler.....	57	16
Scout.....	73	20
Scout corporal.....	92	26
Secondary weapons.....	34	9
Sergeant major.....	44	13
Server, ammunition.....	50	14
Service:		
Battery or platoon.....	163	53
Platoon.....	166 <i>d</i>	56
Platoon, parachute battalion.....	164	54
Signal corporal.....	66	19
Signal sergeant.....	67	19
Sound:		
Ranging, chief.....	123	34
Ranging, operations section.....	167 <i>b</i>	56
Ranging, topographical section.....	167 <i>c</i>	57
Recorder.....	119	33
Recorder, sergeant.....	122	34
Special service team.....	168 <i>j</i>	60
Specialists not provided for by Tables of Organization.....	147-153	40
Squad leader, antiaircraft platoon.....	83	23
Squad leader, antitank platoon.....	81	23
Stable orderly.....	62	17
Stable sergeant.....	63	18
Standards:		
For functional teams.....	154-168	43
For specialists and noncommissioned officers.....	35-153	11
Of training in basic subjects.....	9-34	4
Stenographer.....	37	11
Storage battery man.....	117	33
Supply:		
Assistant.....	42	12
Automobile parts, corporal.....	107	30
Corporal.....	41	12
Motor sergeant.....	107	30
Section.....	168 <i>k</i>	60
Sergeant.....	42	12
Transportation, and maintenance section.....	164 <i>a</i>	54
Survey.....	143-146	39
Corporal.....	127, 128	35
Private.....	126	35
Recorder and computer.....	144	39
Sergeant.....	129, 146	36, 40
Survey and instrument:		
Man, corporal.....	145	40
Man, private.....	143, 144	39
Sergeant.....	146	40
Surveyor.....	146	40
Switchboard operator.....	65	18
Tank mechanic.....	105	30
Tapeman and rodman.....	143	39
Time of performance standards.....	6, 169	3, 61
Topographical platoon.....	166 <i>f</i>	56
Tractor mechanic.....	105	30
Transitman, survey.....	128	35
Utility repairman.....	99	28
Vertical control operator.....	133	37
Wagoner.....	59	17
Weather observer.....	102	29
Weather observer, sergeant.....	103	29
Welder.....	100	28
Welder, combination.....	101	28

	<i>Paragraphs</i>	<i>Pages</i>
Wire.		
Corporal.....	66	19
Section.....	161g, 167d, 49, 57,	
	168g	59
Sergeant.....	67	19
Team.....	162e	52
Wireman and telephone operator.....	64	18

☆ U. S. GOVERNMENT PRINTING OFFICE: 1945—622789

